**School of Accounting**

# Three Essays on Market Risk Disclosures: Corporate Governance, Investment Efficiency and Implied Cost of Equity Capital: Evidence from Gulf Cooperation Council Countries (GCC)

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## DECLARATION

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgement has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

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## ABSTRACT

Market risk exposures have grown considerably in financial firms during the last few years in the Gulf Corporation Council (GCC). With an increase in the growth and size of this market, it has become increasingly important to understand economic consequences behind these exposures. Extant literature lacks adequate research in this area and studies globally and in emerging types markets such as the GCC countries are scarce. This thesis is a rigorous empirical investigation of the interaction of three aspects of market risk disclosures determinants and consequences of GCC listed financial firms: corporate governance, investment efficiency and the implied cost of capital. Using a unique hand-collected dataset from 2007 to 2011, I developed mandatory and discretionary market risk disclosures indices based on the form (qualitative and quantitative) and number of market risk exposures (e.g. interest rate risk, foreign currency risk and equity risk) disclosed in annual reports by GCC financial firms. Then, based on this index, I generate discretion (disaggregation) in mandatory market risk disclosures (extent and quality) variable proxies.

First, incorporating elements of agency theory, legitimacy theory, stakeholder theory, and resource-based dependency, I investigate the impact of a separate risk committee on the extent and quality of market risk disclosures. In particular, I test whether the extent and quality of market risk disclosures correspond to the existence of a separate risk committee, the risk committee characteristics and tests whether the role of a risk committee in affecting market risk disclosures varies with different stages in the firm life cycle. I find that firms with a separate risk committee are associated with greater extent and higher quality market risk disclosures. Furthermore, I find that risk committee qualifications and size have a significant positive impact on the market risk disclosures. Additional analysis shows that a risk committee plays a more crucial role in improving the market risk disclosures of mature firms than that of young firms.

Second, I investigate the association between discretion in mandatory market risk disclosures and investment efficiency. I find both under- and over-investment are significantly negatively associated with discretion in mandatory market risk disclosures. Further, firms that follow both voluntary disclosure and discretion in mandatory risk disclosure enjoy better investment efficiency. Results are consistent with the theory that discretion in disclosures provides managers with alternative channels to provide more firm specific information, which reduces both adverse selection and moral hazard problems and thus improves investment efficiency.

Third, I investigate the association between disaggregation in mandatory risk disclosures, auditor conservatism and the implied cost of equity capital. Disaggregation of disclosures specifically for market risk exposures of financial firms are informative and reveal more private risk information components. I find that the implied cost of equity capital is significantly negatively associated with discretionary disaggregation in mandatory market risk disclosures. Furthermore, the interaction between auditor conservatism and firms' disaggregation provides greater reduction to the implied cost of equity capital. These findings are robust when subjected to a series of sensitivity tests.

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## GLOSSARY OF KEY ABBREVIATIONS

| | |
|---|---|
| *BASEL II* | Basel Committee on Bank Supervision Accords 2 |
| *BCBS* | Basel Committee on Banking Supervision |
| *Disaggregation* | Disaggregation in Market Risk exposures |
| *FASB* | Financial Accounting Standards Board |
| *FDI* | Foreign Direct Investment |
| *GCC* | Gulf Cooperation Council |
| *GFC* | Global Financial Crisis |
| *I/B/E/S* | Institutional Brokers' Estimate System |
| *IAS* | International Accounting Standards |
| *IAS 32* | Financial Instruments: Presentation |
| *IAS 39* | Financial Instruments: Recognition and Measurement |
| *IASB* | International Accounting Standards Board |
| *ICOE* | The Implied Cost of Capital |
| *IFRS* | International Financial Reporting Standards |
| *IFRS 7* | Financial Instruments: Disclosures |
| *IFRS 9* | Financial Instruments: Recognition and Measurement |
| *ISA* | International Standards of Auditing |
| *LTCM* | Long-Term Capital Management |
| *MSCI* | Global Equity Index: global equity benchmarks serves as the basis for over 650 exchanged traded funds. |
| *Objective 1* | Market risk disclosures, corporate's life cycle and board risk committee |
| *Objective 2* | Discretion in Mandatory Risk Disclosures and Investment Efficiency |
| *Objective 3* | Disaggregation in Market Risk Disclosures, Auditor Conservative and the Implied Cost of Capital |
| *Pillar 3* | Pillar 3 of Basel Accords 2 Capital Adequacy and Risk Disclosures |
| *S & P Capital IQ* | Standard & Poor's Capital IQ |
| *SEC* | Securities and Exchange Commission |
| *Sen* | Sensitivity Analysis of Market Risk Disclosures Format |

| | |
|---|---|
| *VaR* | Value-at-Risk of Market Risk Disclosures Format |

# CHAPTER 1

# THREE ESSAYS ON MARKET RISK DISCLOSURES: CORPORATE GOVERNANCE, INVESTMENT EFFICIENCY AND IMPLIED COST OF EQUITY CAPITAL

Chapter 1 discusses the objectives, motivation, results and the contribution of the thesis. The thesis encompasses three interlinked essays ("objectives") relating to the determinants and consequences of market risk disclosures evidence from Gulf Cooperation Council (GCC) countries. The first essay investigates the determinants of market risk disclosures, and the existence of a risk committee. The second essay examines the impact of discretion in market risk disclosures, and voluntary disclosure on the financial firms' investment efficiency. The third essay tests the association between disaggregation in market risk disclosures, auditor conservative and the implied cost of capital. Further, Chapter 1 will discuss the assumptions, and limitations, of this study.

## 1. INTRODUCTION

The extensive trading of derivative financial instruments since the 1990s has been considered the main source of the Global Financial Crisis (GFC). Specifically, large derivative losses of financial institutions during Long-Term Capital Management (LTCM) failure demonstrate the misuse of the derivative financial instruments by firms for both hedging and speculating purposes. However, market regulators have attributed the causes of these financial incidents to insufficient of financial instrument disclosures. Jorion (2002b) claims these crises possibly could have been avoided if derivative disclosures had been more timely and effective. Hence, in response to the crisis, securities' regulators and authorities, and accounting standards setters have undertaken several reforms to enhance the risk-management philosophy and improve the financial risk reporting.

Furthermore, the adoption of IFRS and Basel, a voluntary regulatory standard on bank requirements (Basel II- Pillar 3), are collectively expected to have a profound impact on the reporting of financial firms. In particular, the adoption of financial derivatives and market risk exposures standards (e.g., IFRS 7: *Financial Instruments: Disclosures*, IAS 32: *Financial Instruments: Presentation*, and IAS 39: *Financial Instruments: Recognition and Measurement*: Basel II: Pillar 3) have the potential to increase risk disclosures and transparency related to derivative and market risk exposures. The purported benefit by standard and regulatory setters is to improve comparability and transparency in financial reporting, thereby leading to more efficient contracting between various capital market participants, a lower cost of capital and reduce investment inefficiency (Armstrong et al. 2010; Chen et al. 2013; Li 2010b)

Prior research examined market risk disclosures (e.g., Ahmed et al. 2004; Barton and Bodnar 1994; Jorion 1990; Perignon and Smith 2010a; Rajgopal 1999; Rajgopal and Venkatachalam 2000 Schrand 1997; Thornton and Welker 2004; Tufano 1996) and relied on agency theory and information asymmetry to explain disclosure patterns. By reducing *ex-ante* uncertainty through full disclosure, a firm will be able to reduce its cost of capital and improve investment efficiency (e.g., Campbell et al. 2014; Chen et al. 2013; Cheng et al. 2013; Jorgensen and Kirschenheiter 2003; Solomon et al. 2000). Prior research has supported the theoretical justification for greater disclosure; however, these studies show firms are reluctant to provide full disclosure. For example, firms may not disclose specific disclosure items (Chalmers and Godfrey 2004; Verrecchia 2001b), may not disclose to avoid spill-over effects (Chen et al. 2013) or may not disclose due to a lack of an adequate and structured risk management system (Bich Tao and Hutchinson 2013). Empirical evidence (e.g., Eng and Mak 2003; Frankel et al. 1995; Taylor et al. 2008; Wan-Hussin 2009), have also indicated that various determinants may influence firms' to provide more extensive disclosure on

specific issues. For example, Eng and Mak (2003), Armstrong et al. (2010), Beyer et al. (2010) Beekes and Brown (2006) have suggested a firm's corporate governance structure is an important determinant of firm's disclosure and transparency. Financial instruments and market risk exposures noticeably are considered a central issue of a firm's financing structure which in turn influences capital of the firm's management policy (Beattie et al. 2006). Therefore, the disclosure of market risk is highly related to a firm's capital management policy (Beatty and Weber 2003).

Clarity of communication in relation to financial market risk exposures is important as these market risk exposures can be complex and even specialised investors may not have a complete understanding of the processes and valuation inputs involved in the measurement of these instruments. For example, Hodder et al. (2001a) suggest that, if market risk information is disclosed in aggregated form, this will obscure essential information about the risk elements; investors will not be able to discount the market risk exposures for each component. Furthermore, aggregated risk disclosures cause individual investors to react differently compared to the situation if risk information is disaggregated (Hodder et al. 2001a). This view also is supported by IFRS 7 [Parag. 40(a)] which requires firms' to not disclose market risk information on an aggregated basis if, in doing so, it obscures important differences between individual transactions or associated risks. Failure to understand the nature of market risk exposures could potentially lead to a negative economic outcome for the firm (Dobler 2008). More specifically, in countries such as the GCC, where media reporting is lacking, regulatory enforcement mechanisms are lacking, and with stocks that are not consistently followed by analysts, firms tend to have inadequate risk management systems.

The Gulf Cooperation Council (GCC) was established in 1981 to strengthen the economic cooperation and development of six countries comprising Oman, Bahrain, Kuwait, Qatar, Saudi Arabia (K.S.A) and the United Arab of Emeritus (U.A.E). The GCC countries'

income is largely reliant on oil and gas exports (Balli et al. 2011)). The oil crises of the 1970s and early 1980s led the GCC countries to adopt different strategies by investing oil and gas revenue in industries which can build a competitive advantage such as in petro-chemistry, banking, financial services, airline, real estate and telecommunications (Fasano and Iqbal 2003). These strategies have created a reciprocal and trustworthy partnership with the U.S. and European counties which has attracted capital from investors of these regions and the rest of the world. A number of reforms that have assisted the GCC counties to create favourable macroeconomic conditions leading to improved capital inflows (Balli et al. 2011). These reforms are reflected by fiscal discipline, low interest rates (on average between 3%to 4% in some cases), minimum translation of costs and uncertainty about capital repatriation, and new laws and governance to protect property rights, reduce corruption and ease ownership restrictions, and mandatory adoption of International Financial Reporting Standards (IFRS).

Researchers suggest these reforms are considered an important strategy of moving away from oil dependency. For example, Balli et al. (2011, 436) states that these types of reforms

"*can be seen as a smart move as they are moving away from oil dependency to create industry and service-based economies capable of rivaling other economies in the international markets. The combined outcomes of this overall dynamic are that the GCC markets have become more and more important over the years for investors seeking higher returns and workers seeking better opportunities and for countries seeking investment projects*."

The GCC countries also have pledged and attained stages in achieving the international liberalization. For example, in May 2014, the United Arab Emirates and Qatar both were upgraded to emerging market status by index compiler Global Equity (MSCI) (GulfBusiness, 2014).[1] Prior evidence confirms the high capital inflow to the GCC. Lagoarde-Segot and Lucey (2007) find international investors include the GCC region in

[1]<http://gulfbusiness.com/2014/06/experts-call-for-better-regulation-of-gcc-stocks-post-arabtec-saga/#.U_2qiPmSx8F>

their investment portfolio due to risk diversification. Mina (2007) finds that the utilization of oil revenue in GCC leads to higher foreign direct investment (FDI).

Recently, the resignation of Arabtec's CEO, who had unexpectedly purchased a large stake in the firm, had fuelled rumours of management turmoil, leading the share price to halve in less than a month, erasing some US 3.9 billion of market value and shares in stock markets fell to 6.7 percent (Businessweek, 2014).[2] Arabtec has declined to answer important questions about its business strategy and its relationship to major shareholders. Shakeel Sarwar, the head of major fund manager Securities & Investment Co. in Bahrain, states that "These types of things do not happen in developed markets, where regulators play an active role in ensuring transparency" (GulfBusiness, 2014). The former incident (among others) provides evidence of the pressure and desire for capital markets in the GCC to promote further transparency and quality reporting development.

Indeed, financial institutions of GCC countries were exposed to a range of financial risks including interest-rate, foreign exchange, credit, liquidity and equity risks. Investment in foreign exchange and circulation has become an essential element in the portfolio of institutional investors. *The Economics* (2008)[3], the daily newspaper of Saudi Arabia, reported in 2008 that the daily foreign currency trades in the GCC were equivalent to three trillion dollars of U.S. currency, more than 20 times the average daily trading volume on the New York Stock Exchange. Moreover, a report in the *Al-Watan* newspaper in Kuwait documented that investment in stocks accounted for 40% of total investments for insurance companies in the GCC in 2013.[4] Investment in the GCC stock market is very risky as this market has a historical record of very high volatility. For example, during 2005, the stock price in the Saudi stock market rose by 98%; in the Kuwait Stock Exchange, the stock price increased by 87%; in Qatar's stock market, the stock price rose by 68%; the stock price rose in Oman by

[2] <http://www.businessweek.com/articles/2014-06-24/why-did-the-dubai-stock-market-crash>
[3] For details, please visit <http://www.aleqt.com/2008/02/20/article_129493.html>.
[4] See <http://alwatan.kuwait.tt/articledetails.aspx?Id=368227> in Arabic.

31%; and in the Bahrain Stock Exchange, the stock price jumped by 24%. In addition, the assets of hedging funds management in GCC markets have been growing from 135 U.S. dollars to 2024 billion US dollars in 2009. However, these funds in the GCC revealed inadequacy of risk management specifically during the financial crisis.

Currently, substantial resources are devoted to the disclosure of information within the annual report and other types of media without any clear indication of matching benefits to both the users, preparers and other producers of these annual reports (Stocken and Verrecchia 2004). Researchers are interested in advancing an understanding of the determinants and consequences between the extent and quality of disclosures, cost of capital, corporate governance, investment efficiency. Thus, this thesis will shed the light on the determinants and consequences of market risk disclosures in the Gulf Cooperation Countries (GCC).

## 2. OBJECTIVES OF THE STUDY

Studies that use U.S. stock price and return data suggest that market risk disclosures are useful and informative (e.g., Ahmed et al. 2004; Barton and Bodnar 1994; Jorion 1990; Perignon and Smith 2010a; Rajgopal 1999; Rajgopal and Venkatachalam 2000 ; Schrand 1997; Thornton and Welker 2004; Tufano 1996). The extent and quality of market risk disclosures may impact investors in several ways. For example, Lim and Tan (2007,p.366) suggest that "investors perceive the earnings of firms with substantial market risk exposure to be less persistent, and adjust the future abnormal earnings for the higher risk exposure. Thus, this results in a lower expected rate of return". Previous studies also investigate different determinants and consequences of market risk disclosures from non-U.S. economics (e.g., Amran et al. 2008; Hassan 2009; Othman and Ameer 2009). This thesis provides further

information on the determinants of market risk disclosures. In doing so, this thesis addresses the following three objectives using evidence obtained from the GCC firms.

- Objective 1: Market risk disclosures, corporate's life cycle and board risk committee (RC): Evidence from Gulf Cooperation Council (GCC)
- Objective 2: Discretion in market risk disclosures and investment efficiency: Evidence from Gulf Cooperation Council (GCC)
- Objective 3: Disaggregation in market risk disclosures, auditor conservative and the implied cost of capital: Evidence from Gulf Cooperation Council (GCC)

## 3. SUMMARY OF RESULTS AND SIGNIFICANCE CONTRIBUTIONS

This section discusses the summary of results and discussion, and the significant contribution for each objective separately.

### 3.1 Objective 1: Market risk disclosures, corporate's life cycle and board risk committee

The purpose of the essay that investigates objective 1 is to examine the impact of risk committee (hereafter RC) concentration and specialization, and the stages of a firm's life cycle in affecting market risk disclosures in the Gulf Cooperation Council region. In particular, I test whether the existence of a RC has an impact on the extent and quality of market risk disclosures. I also examine the relevance and significance of RC characteristics in explaining the extent of market risk disclosures. Furthermore, I study whether the role of the RC in affecting market risk disclosures varies with different stages in a firm's life cycle.

#### 3.1.1 Summary of results

The findings suggest that a stand-alone RC significantly improves the extent and quality of market risk disclosures. In particular, I find the association between RC and extent and quality of market risk disclosures are positive and statistically significant ($p<.01$). Moreover, when RC characteristics are taken into account, I find that RC qualifications and

size significantly (at p<.01) improve the extent of market risk disclosures. However, I fail to find any significant impact of the RC independence on the extent of market risk disclosures. In addition, results show that the RC plays a dominant role in enhancing market risk disclosures of mature stage firms as compared to that of younger stage firms. The latter result is consistent when using different life cycle measures. I use instrumental-variable (IV) techniques together with ordinary least squares (OLS) estimation to mitigate endogeneity concerns. The IV results indicate that endogeneity cannot account for the positive relationship between the RC and extent of market risk disclosures.

### 3.1.2 Significance

The first objective of this study ("objective 1") contributes to the governance and disclosure literature in some important ways. First, it extends the corporate governance literature by providing evidence that a separate RC has a significant impact on improving the extent and quality of market risk disclosures. While prior research (e.g., Mangena and Pike 2005) document that the board audit committee (AC thereafter) characteristics have a positive impact in improving the disclosure process and monitoring effectiveness of the firm, prior research has not explicitly examined whether the RC can improve market risk disclosures. This study explicitly examines this association and thus sheds light on an aspect of reporting which is growing in importance in the GFC. Second, given the recent emphasis of regulatory bodies on strengthening risk management and risk reporting systems of financial firms and the overwhelming trend of firms to form a separate RC, an empirical study on the association between the formation of RCs and market risk disclosures is worthwhile and timely. This study responds to this call by investigating this association, suggesting that a separate RC can enhance shareholders' interests through effective oversight of risk management and risk reporting. Third, I extend prior studies that document a positive association between firm size

and extent of risk disclosure. My results show that an RC plays a more significant role in enhancing market risk disclosures of mature-stage firms than that of young-stage firms. Thus, firm life cycle stages have important bearing on market risk disclosures. Finally, despite the pivotal role of disclosure in enhancing firms' value and shareholders' relationship, there has been comparatively little research on this issue from a developing country perspective. Hence, I draw on a sample of firms from the GCC, an economically and politically important region. This study provides an important opportunity to investigate the role of a separate RC in enhancing the extent and quality of risk disclosures in the presence of significant ownership concentration, the findings of which can be extrapolated to other developing countries.

### 3.2 Objective 2: Discretion in market risk disclosures and investment efficiency

In this essay that investigates "objective 2", the effect of discretion in mandatory risk disclosures on investment efficiency[5] of financial firms belonging to six emerging markets in Gulf Cooperation Council (GCC) region is examined. Specifically, I examine whether discretion in mandatory market risk disclosures reduces agency related issues stemming from under- and over-investment. I also investigate whether the presence of both voluntary disclosure and discretion in mandatory risk disclosures improves firms' investment efficiency.

#### 3.2.1 Summary of results

Using a sample of financial sector firms over the 2007- 2011 period, I provide evidence in support of the assertion that discretion in mandatory risk disclosures reduces both under-and over investment. Specifically, the negative and significant coefficients between

[5] Investment efficiency refers to the propensity of a firm to undertake all the projects with only positive NPV. For this study, I define investment efficiency as the reduction of both under-investment and over-investment.

disclosure proxies and the investment efficiency (over- and under-investment) are consistent with the hypothesis that discretion in mandatory market risk disclosures improves the flow and precision of information, which may reduce information asymmetry and moral hazard problems. Furthermore, I find that the presence of both discretion in mandatory risk disclosures and voluntary earning disclosure (as proxied by earning growth) significantly improves firms' investment efficiency by reducing both over- and under-investment. These results are robust to alternative specification of investment efficiency, market risk disclosures and endogeneity.

### 3.2.2 Significance

This study makes several important contributions. First, this study extends the disclosure literature by examining the impact of discretion in mandatory risk disclosure on investment efficiency. While prior literature investigates the association between financial reporting quality and investment efficiency (e.g., Biddle and Hilary 2006; Chen and Chen 2012; Cheng et al. 2013; Chen et al. 2011a; Biddle et al. 2009), to the best of my knowledge, there has been negligible research investigating the relation between discretion in mandatory risk disclosures and investment efficiency. I show that discretion in mandatory risk disclosures provides investors with credible information which reduces uncertainty and improves managerial decision-making. Second, results confirm the view that existence of both mandatory and voluntary disclosures is crucial for firms' disclosure strategy (Einhorn 2005). Specifically, I document that presence of both discretion in mandatory risk disclosure and voluntary earnings disclosure has important implications for financial risk disclosure levels and investment decision-making. Third, while earlier studies (e.g., Biddle and Hilary 2006; Chen et al. 2011c) provide empirical evidence of investment efficiency in developed markets (e.g. U.S.) and in Asian emerging markets (e.g. China), there is far less research that focuses

on emerging markets from the GCC. Mandatory disclosure is more stringent in mature enforcement regimes (Einhorn 2005; Ostberg 2006), which in turn reduces opportunities for managers to provide disclosure. In this context, this essay investigates discretion in mandatory market risk disclosures of financial institutions of six GCC countries characterized by low levels of disclosure, weak enforcement regimes[6], and lower investor protection (Al-Yahyaee et al. 2011).[7] Furthermore, although investment efficiency of non-financial firms has been investigated in prior studies, there is a lack of empirical evidence on the investment efficiency of financial firms. Indeed, firms belonging to the financial sector are generally more prone to issues relating to risk disclosure as these firms are subject to greater regulatory constraints (e.g., Central Bank regulation, Basel, and IFRS). Prior research on the financial industry and market risk reporting show that financial firms disclose more risk related information compared to that of other industries (e.g., Hirtle 2007; Nier and Baumann 2006; Perignon and Smith 2010a). Linsley and Shrives (2006) note that financial firms are highly risk oriented institutions and hence they suggest that risk disclosure of financial firms should be understood separately from that of firms belonging to other sectors. In this study, a sample of financial firms has been selected to investigate the association between discretion in mandatory risk disclosure and investment efficiency.

### 3.3 Objective 3: Disaggregation in Market Risk Disclosures, Auditor Conservative and the Implied Cost of Capital

In this study that investigates "objective 3", the effect of discretionary disaggregation in mandatory market risk disclosures (disaggregation thereafter), auditor conservatism and the implied cost of equity (ICOE thereafter) on GCC financial firms is examined. First, I

[6] For instance, weak and strength enforcement index developed by World-Bank shows a moderate score index for GCC, from 2007 to 2011, with a mean score of 4 (Oman; Bahrain; Kuwait, Qatar; U.A.E), minimum of 3 and maximum of 5 in K.S.A.

[7] Furthermore, investor protection index extracted from World-Bank, from 2007 to 2011, illustrates that (on average) K.S.A scores the highest investor protection index of 6.48, while the U.A.E scores the lowest investor protection index of 4.3).

examine whether the disaggregation disclosure provides investors with more private risk information and, in doing so, whether this reduces the ICOE. Second, I investigate the role of auditor conservatism on the relation between discretionary disaggregation in mandatory risk disclosures and the ICOE. I hypothesize that the decomposition of mandatory market risk disclosures into their components reduces the ICOE through the provision of more information regarding a firm's risk exposures and its capacity to deal with those risks.

### 3.3.1 Summary of results

I provide evidence to support the assertion that disaggregation reduces the ICOE. Disaggregation specifically in mandatory market risk disclosures significantly reduces the ICOE after controlling for firm-specific and country-specific governance factors. I find that disaggregation reduces the ICOE by between 12 basis and 22 basis points. I also find that the interaction between firms' disaggregation and auditor conservatism has a significant impact in reducing a firm's ICOE. These results are consistent after dividing the sample into two groups comprising conservative auditors and non-conservative auditors in line with the study by Tong and Sapra (2009).[8] Results are robust to alternative econometric specifications (e.g., two-stage equations and serial-correlation dependence tests) and different measures of the ICOE, disclosure disaggregation and auditor conservatism.

### 3.3.2 Significance

This paper contributes to the work of Chen et al. (2011b) in several ways. First, my sample is derived from frontier-type markets that are characterized by a high level of dominance by government, family and ruling family on listed firms activities and governance structure. Second, my study proposes that disaggregation of risk disclosures is influential in

[8] Tong and Sapra (2009) suggest that pooling samples that combine firms with aggressive auditors and those with conservative auditors may provide a false result. Hence, partitioning the sample size into two sub-samples may provide greater statistical power of the test.

reducing information asymmetry. Third, I investigate the interaction between disaggregation and existence of a conservative auditor, and its impact on the ICOE. Fourth, as an extension of prior studies that have investigated the disaggregation in mandatory earnings, special items, expenses and segment reporting (e.g., Botosan and Stanford 2005; Herrmann and Thomas 2000; Riedl and Srinivasan 2010; Venter et al. 2013), this study investigates the consequences of the disaggregation of mandatory market risk disclosures on the ICOE. Fifth, the financial sector is one of the few sectors in the GCC that is allowed by government to achieve full competition (Hertog 2012). Prior studies on the financial industry and market risk reporting shows that financial firms disclose relatively more comprehensive risk information than other industries (Nier and Baumann 2006; Perignon and Smith 2010a). There are less studies on the cost of equity capital in financial firms (e.g., El Ghoul et al. (2011)[9]; therefore, I draw the sample from GCC financial firms.

Finally, in the GCC, most stocks rarely receive analyst coverage and few analyst recommendations which reduces firm-specific earnings' forecasts (Bley and Saad 2012; Al-Ajmi and Kim 2012).[10] This creates a poor information environment which, in turn, leads to higher uncertainty regarding firm-specific information. Since most of the GCC-listed firms are not followed by analysts, the ICOE based on analyst coverage is much less extensive for the GCC countries. I provide a new approach for the ICOE, using a firm-specific realized earnings model by adopting the simultaneous portfolio measure of (Easton and Sommers 2007). Recently, Larocque (2013) corroborated the Easton and Sommers (2007) model,

[9] El Ghoul et al. (2011) investigate the disclosure of social responsibility and the cost of equity capital from mixed industries where financial firms dominated the sample.

[10] For example, Bley and Saad (2012) investigated the pricing of idiosyncratic risk and expected returns in the six frontier GCC countries using the asset pricing model. However, the asset pricing model provided none of the firms' factors for the required stock return (Easley and O'hara 2004). Fama and French (1993) suggest that factors other than market risk may affect the required return. In addition, Lang et al. (2004) found only 2094 earnings' analyst forecast observations for multi-industrial firms from the Institutional Brokers' Estimate System (IBES) for 27 countries which had less investor protection spanning the period 1993–1996. Likewise, as my sample covers only six countries and one industry, I obtain a much smaller amount of earnings' analyst forecasts (about 100 firm-year observations) from IBES and TAIB Research for my sample of financial firms from 2007–2011.

finding that correcting for predictable optimism in analyst forecast models lowers the abnormal growth of the ICOE models, but does not affect *ex-post* realized returns.[11] In addition, I use a portfolio-specific measure which leads to exploiting the industrial-neutral commonalities (Barth et al. 2013).[12]

## 4. ASSUMPTION AND LIMITATIONS

This thesis has certain limitations and assumptions. This study focuses only on market risk disclosures of financial firms. Sophisticated market risk information such as "Value-at-Risk (VaR)" is rarely disclosed by non-financial firms. However, there are other industries such as mining and utilities which might be subject to market risk disclosures that are not included in this thesis. Furthermore, there are number of large banking, financial, insurance and investment firms that are involved in market risk exposures in the GCC that are not listed on the GCC stock markets such as "International Gulf Bank" in Bahrain. These entities utilise and variably disclose market risk disclosures within annual reports. As these firms are not listed on the GCC stock markets, and hence do not have to report under the GCC listed rules and regulation, these firms are excluded from the study.

Further, this thesis is confined to a five year period encompassing the 2007, 2008, 2009, 2010, and 2011 financial years. It is assumed that this period is sufficient to adequately test the three objectives. Specifically, the adoption of IFRS 7: *Financial Instruments: Disclosures* is mandatory in all GCC countries from 2007.

[11] Larocque (2013) estimates the realized return in Easton and Sommers (2007) model supplements for returns' news and earnings' news. This is also supported by Mohanram and Gode (2013) who indicate that removing predictable analyst errors leads to stronger association between the implied cost of capital, adjusted forecasts and realized return.

[12] For comparative purposes and so I can also take advantage of the varying benefits of each model, I use three models of ICOE based on firm-specific models: $r_{t\text{-}oj}$ is the implied cost of equity based on Ohlson and Juetnner-Nauroth (2005); $r_{t\text{-}peg}$ is the implied cost of equity based on Easton (2004); and $r_{t\text{-}peg\text{-}RW}$ is the implied cost of equity capital based on Easton (2004) with random walk forecasts using Bradshaw et al. (2012) model.

Empirical analysis may not include all the corporate governance and country specific items that influence market risk disclosures. In addition, the market risk disclosures index may not include all items and exposures. . In addition, endogeneity may potentially be a problem. This thesis attempts to deal with this issue through: (1) the inclusion of a diverse set of independent and control variables; (2) analysis of data on a year by year; country by country basis; (3) uses a dynamic regression models (lag variables on independent and control variables); (4) use of Heckman's (1978) Second Least Squared (2SLS) method and followed by post-estimations tests to robust the validity of the instrument variables (IV); and (5) use of alternative measures for each main model dependent and independent variables.

The study relies solely on annual reports to derive the market risk disclosures index and corporate governance items. Potentially a company may disclose information related to market risk disclosures in media releases, internal reports, Basel requirement reports, analyst reports or the website that has not been incorporated within the annual reports. Moreover, a firm may not disclose complete information related to the corporate governance within the annual reports. Additional information may be largely contained with stand-alone corporate governance policy and procedure documents on firms' website. Further, additional information related to cost of capital (e.g., earning forecast) might be contained within analyst reports and media releases rather than the annual reports. However, a comparison of market risk disclosures and corporate governance disclosures contained within the annual reports and that contained within separate reports located in the firm's websites revealed that there were no material differences in the disclosed information.

Items of information that comprise the market risk disclosures index are constructed based on the informativeness of disclosures and are considered applicable to all listed firms. The issue of applicability of disclosure to all sample firms has been largely overcome by focussing on those companies that are related to the financial industry especially following

the adoption of IFRS 7 in 2007. In my index construction, I rely on a Value-at-Risk (thereafter VaR) Index and Sensitivity Analysis (Sen thereafter) Index as IFRS 7 requires disclosure of market risk under VaR and/or Sen analyses and/or on a Tabular (maturity-gap) basis. The VaR index is used in many surveys and studies (Hirtle 2007; Perignon and Smith 2010a; BCBS 2001, 2002, 2003). However, these studis and surverys have been conducted for banks, and conducted in U.S. Furthermore, previous studies have neglected the Sen format as an altenrative format that firms are required to disclose as part of their overall market risk disclosures. No prior studies have applied the Sen index. In additon, no studies have incorporated both the Sen and Var index in a single study. I incorporate both indices for the first time. In fact, this is the first study that incorporated both the VaR index and Sen Index in one study. However, I do not include Tabular or maturity-gap format in the index as Tab (thereafter) format tabulates market risk sensitivities based on assets and liabilities (Hodder and Mcanally 2001b). Using the Tab format, investors should be able to determine the cash flows derived from the firms' financial instruments. Thus tabular format is represented in different ways and styles depending on firms. There is no standard format for Tabular format based on IFRS 7 (even based on Basel II Pillar 3 and FRR .48). Prior literature that evaluates market risk disclosures include a dummy variable if firms disclose information via a Tabular format or investigate the tabular format using one market risk exposure method (Ahmed et al. 2004).

The aforementioned assumptions and limitations are common issues encountered with past disclosures studies and do not detract from the study's quality. Overall, this study represents a comprehensive analysis of the factors and consequences of market risk disclosures.

## 5. OVERVIEW OF THE THESIS

The thesis comprises seven chapters. *Chapter 1* outlines the research questions "objectives", motivation, significant contributions, summary of results, assumptions and limitations and thesis structure.

*Chapter 2* provides an overview of the GCC political, economic environment and capital markets, market risk disclosures: conceptual and institutional background, research theories, literature review and ends with chapter conclusion.

*Chapter 3* discusses the data sources for this thesis "all objectives" includes discussions on the descriptions of sample selection procedure.

*Chapter 4* presents the first objective "Risk committee, corporate life cycle and market risk disclosures: evidenced from Gulf Cooperation Council (GCC). This paper has been accepted for publication in *Corporate Governance: An International Review (CGIR),* [ABDC: A and ISI: 12/91 Business Finance]. Below the detail of resume license agreement with CGIR:

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*Chapter 5* presents the second objective "Discretion in mandatory risk disclosures and investment efficiency: evidenced from Gulf Cooperation Council (GCC). This paper is presented in Curtin University PhD curriculum in October 2014, and obtained the third place as the best paper award. All comments are addressed in this thesis.

*Chapter 6* presents the third objective "Disaggregation, audit conservative and the implied cost of capital: evidenced from Gulf Cooperation Council (GCC). This paper is presented in the 5th Financial Markets and Corporate Governance Conference, QUT Brisbane 22-24 April 2014. The conference editor, co-editor and discussants' comments are addressed in this thesis. And eventfully the objective is published in *Multinational Journal of Financial Management (*MJFM), co-authored with my supervisors and (ex-supervisor M. Hossain). [ABDC: B]. Below the detail of resume license agreement with MJFM:

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Al-Hadi, A., Taylor, G., & Hossain, M. (2015). Disaggregation, auditor conservatism and implied cost of equity capital: An international evidence from the GCC. *Journal of Multinational Financial Management*, *29*, 66-98.

*Chapter 7* provides a summary of major findings from the empirical analysis in the three objectives. Conclusions are drawn from these findings followed by discussion of policy implication and contributions of the thesis. In addition, chapter 7 provides scope of future research in the GCC.

# CHAPTER 2

# THE GCC ENVIRONMENT, MARKET RISK: CONCEPTUAL AND INSTITUTIONAL BACKGROUND AND LITERATURE REVIEW

## 1. INTRODUCTION

The purpose of Chapter 2 is to review the political, economic environment and capital markets development of Gulf Cooperation Council (GCC) countries. Furthermore, the accounting, reporting, regulation and auditing profession of GCC countries, and in particular, the regulatory requirements in relation to qualitative and quantitative market risk disclosures requirements, are discussed in this chapter. Finally, prior studies on market risk disclosures, corporate governance structure, investment efficiency, and cost of equity capital are also reviewed in this chapter.

## 2. GCC: POLITICAL AND ECONOMIC ENVIRONMENT AND CAPITAL MARKETS

Oman, Bahrain, Kuwait, Qatar, Saudi Arabia (K.S.A) and the United Arab of Emeritus (U.A.E) are in aggregate referred to as Gulf Cooperation Council GCC counties. Collectively, the GCC countries contain 45% and 23% of the world's oil and gas reserves respectively (Al-Shammari et al. 2008; Espinoza et al. 2011). The GCC countries collectively are one of the fast growing regions in the global economy, while the stock exchange markets represent emerging but equally rapidly growing markets (Al-Janabi et al. 2010). The GCC countries achieved solid economic growth evidenced by increasing gross domestic production (GDP) per capital from USD 11000 in 2002 to US$ 249031.7 in 2011 (see World Bank data website).

The stock market capitalization for the six GCC countries increased from USD 120 billion in 2002 to USD 67000 billion in 2011 and volume of shares traded also increased

multiple times during the same period. Further, the number of companies listed on the GCC stock markets increased from 399 firms in 2000 to 702 companies in 2011 (Bley and Saad 2011). Moreover, the GCC sovereign wealth fund (SWFs) is estimated to be over USD 1 trillion in size with the market capitalization of equity markets exceeding USD 1 trillion (Espinoza et al. 2011).[13] Bley and Saad (2011) documented that five of six countries (excluding KSA) represent more than one-third of S&P frontier broad market index.

The GCC financial markets differ from developed and many emerging markets in that the GCC is very sensitive to regional political crises (Al-Janabi et al. 2010). For example, Malliaris and Urrutia (1995) record significant price reactions during the Persian (Arab) Gulf War I. Experiences in financial and political crises over the last three decades (oil crisis, September 11 and gulf war I & II) [14] have helped the GCC countries to develop different strategies, such as investing locally in competitive sectors so as to avoid an outflow of funds. Hence, governments have invested extensively in banking, financial services and other fully-state-owned companies (Balli et al. 2011; Hertog 2012)[15]. These activities have developed the GCC capital markets and attracted institutional and foreign investors to hold investments in that region (Al-Janabi et al. 2010)[16]. Financial markets in the GCC countries are largely dominated by the commercial banks (local and branches of foreign banks) and real-estate (Al-Shammari et al. 2008; Espinoza et al. 2011). Public listed firms encompass firms belonging to the banking, investment, insurance, industrial and services sectors (Al-Janabi et

[13] Further, share prices were initially offered at a bargain and returns are fairly significant (Bley and Saad 2011). In 2004, foreign portfolio holders have reported returns of US$ 150 to US $170 billion from GCC markets (Bely & Chen, 2006).

[14] Balli et al. (2011) detail the financial and political crisis and its impacts in the Middle East from 1970 up to 2003

[15] This commenced from the early 1990s when each individual country attempted to diversify its economy, privatize public sector firms and improve the legal and financial institutional infrastructure and also by pegging their currencies to the US dollar (Espinoza et al. 2011).

[16] For instance, early privatization of state enterprises beginning in 1995 (government owns major stack of shares) and the lifting of investment restrictions in the 1990s had attracted foreign investment. That led risk-averse investors to be more secure in their investments particularly since GCC governments are major shareholders of most of larger companies (Balli et al. 2011)

al. 2010). Only finance and telecom sectors are allowed by the GCC governments to engage in free competition (Hertog 2012). Banks in the GCC countries are well capitalized and are stable across the GCC countries as a consequence of prudential regulation and supervision (Espinoza et al. 2011).

Equity ownership structure in the GCC listed companies are controlled (owned) by a variable percentage of indigenous population (Al-Janabi et al. 2010). Ownership is typically categorized into government and its agencies (e.g. ministry of defence pension fund), dominant merchant families, royal families and institutional investors (Al-Shammari et al. 2008)). Until recently, entry into the GCC equity markets was permissible only to GCC firms (Al-Janabi et al. 2010; Balli et al. 2011). Kuwait and the KSA do not allow any direct foreign investment ownership of stocks to be traded in their stock exchanges. Oman is the only country that lifted the barrier of 100% ownership of stock and other remaining countries permit foreign ownership of stock with variable equity limits (Bley and Saad 2011).Overall, market capitalization of GCC firms is still relatively small and characterized by infrequent trading of securities with low trading volume compared to that in developed countries or well-established emerging markets (Al-Janabi et al. 2010).

Despite significant efforts to build informative accounting information systems by government and accounting professional bodies, the accounting profession in the GCC region is still in its infancy (Al-Shammari et al. 2008). Adoption of International Accounting Standards (IAS)/International Financial Reporting Standards (IFRS) is mandatory for all stock listed companies in Oman, Kuwait and Bahrain. Further, IAS/IFRS adoption is only mandatory for banks, finance and investment companies in Qatar, K.S.A and the UAE.

The financial reporting framework of GCC countries is based on company-law and royal decree (Al-Shammari et al. 2008). Only Oman, Kuwait and UAE have significant

surveillance programs that investigate companies' compliance with financial reporting requirements (Al-Shammari et al. 2008). Further, Kuwait and Oman are the only two countries in the GCC that have undertaken action against firms for breach of reporting requirements.[17] Studying the legal system, accounting, and auditing and capital market regulation of the GCC countries assists in understanding the motivation of firms to disclose financial risk information, level of disclosures and transparency by firms in each of the GCC member countries. The following section discusses laws, accounting regulation, corporate governance and the financial sector for each GCC member country:

**2.1 Sultanate of Oman:** Muscat Security Market (MSM) was established in 1988, and then the government established the Capital Market Authority (CMA) in 1998 to promote and monitor the licenses and trading issue of securities[18]. In 2002, the CMA released and mandated a code of corporate governance for listed firms. The Central Bank of Oman (CBO) was formed by a Royal Decree No.3-1974 to supervise all types of banks in Oman and related financial disclosures (Hussain et al. 2002). CBO requires banks to have audited annual financial statements from independent auditors and must be prepared under IAS/IFRS (Hussain et al., 2002)[19].

**2.2 Qatar**: The accounting and auditing are regulated under company law and commercial code, except for the banking sector which regulated by Qatar Central Bank (QCB)[20].

[17] Two reported cases in Kuwait for 1) auditor gave unqualified audit report, but the company violated IAS and 2) shareholders complaint, which resolve BOD, management and auditor. Four cases in Oman, 1) 2 for auditors failed to notify firms' IAS violations and 2) security regulator found 1 firm did not comply with IAS and second found firm's management provided misleading and incomplete disclosure (Al-Shammari et al. 2008)

[18] During 1997 to 1998, the capital market exhibited a tremendous drop in market value leading to collapse of many firms such as National Rice Mills SAOG and Oman National Investment Company SAOG. Despite the reasons to this sharp drop of capital market, government of Oman began to undertake further steps to avoid these crises in future.

[19] Hussain et al. (2002) provide a details survey of accounting and auditing regulation and standards practices in all GCC countries.

[20] QCB is responsible to promote sound banking and financial statement (Hussain et al. 2002). QCB mandates IAS for all banks (local and foreign) that operate in Qatar by Circular No. 53-1995, excluding IAS 24 - Related Parties Disclosures (Al-Qahtani 2005). In 1996 QCB released Circular No. 33-1996 to require all banks to

Although Qatar is not a member of IFAC and until recently IAS/IFRS was not mandatory for non-financial firms, the use of big 4 accounting firms increased the adherence and adoption of IAS/IFRS in many listed firms (Al-Qahtani 2005) [21]. In 2005, Qatar Financial Market Authority (QFMA) established as an independent supervisory agency to govern the capital market trading activities.[22] QFMA introduced code of corporate governance in 2009, which is driven from OCED based on "comply or explain" (Sharar 2011).[23]

**2.3 Kingdom of Bahrain:** Bahrain is a member of the International Federation of Accountants (IFAC). Accounting reporting requirements commenced in 1973- Law No. 23 by establishing Bahrain Monetary Agency (BMA)[24]. In 1992 IAS and ISA were adopted for all banks and listed firms by BMA. Furthermore, the Bahrain Stock Exchange (BSE) was established in 1987[25]. The government of Bahrain established a new official market trade referred to as the Bahrain Stock Exchange (BSB)[26]. In 2011, CBS issued a "comply or explain" the code of corporate governance for listed firms based on nine principles.

**2.4 Kuwait:** Kuwait is also a member of IFAC. The Ministry of Commercial and Industry (MCI) and Kuwait Stock Exchange (KSE) issue rules for listed companies. Although, Kuwait is considered one of largest stock market in the GCC, Middle East and North Africa (MENA) and Arab World, the stock market until recently (Feb 2012) was regulated without Capital

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appoint two independent auditors, term of five year and annual audited financial statements (Hussain et al. 2002).

[21] Companies Law No.5-2002 contains some incomplete accounting requirement for companies such as depreciation and percentage deduction of companies' gross earnings by BOD. Other article N. 119 requires the BOD to prepare the annual audited financial statement and notes. Accounting figures must be compared to past year without any presentation or disclosures formats (Al-Qahtani 2005).

[22] Royal Decree No. 33-2005 and amended by No.14-2007.

[23] (Sharar 2011) for comprehensive QFMA'S code, he compares the QFMA's code of corporate governance with OECD principles.

[24] Replaced by Royal Decree 64-2006- to Central Bank of Bahrain CBB)

[25] Royal Decree No. 4-1987Shortly is replaced by Bahrain Bourse (BHB) by the Law No. 60-2010. The first attempt to establish local or to adopt international accounting standards was commenced in 1983, by the Ministry of Trade and Agricultural, when it called for conference inviting international and local accounting firms and offices for the purpose to create a committee to establish a local accounting standard.

[26] Many companies became public in Al-Jowhara Market "unofficial market trade" soon after the crash of Souk Al-Manakh-the Kuwaiti "unofficial market trade".

Market Authority CMA (Al Mutairi and Hasan 2010)[27]. In 1990, Ministerial Resolution mandated IAS\ IFRS for all listed firms. Then, Company Law No.15 in 2010 and CMA 25/3013 released twelve provisions on corporate governance for the listed firms effective from 2016.

**2.5 Kingdom of Saudi Arabia (K.S.A):** The K.S.A is the only country in the GCC region where the accounting profession is regulated by a professional accounting body. The Saudi Organization for Certified Public Accounting (SOCPA) was founded in 1992 through three stages[28]. Furthermore, the Saudi Arabian Monetary Agency (SAMA) was established in 1952 to regulate and supervise (local and international) banks that had banking operations in the KSA[29]. Banking Control Law requires banks and any related financial firms to disclose based on IAS/IFRS and encourages all banks that operate in Saudi Arabia to comply with those disclosure requirements. Then in 1994, disclosure became mandatory. The Saudi Stock Exchange (TADAWUL) is regulated via the CMA[30]. In 2006, the CMA issued the code of corporate governance effective from 2009.[31]

**2.6 United Arab Emirates (U.A.E):** The central bank of UAE was established by Union Law No. 2-1973 referred to as the Currency Board[32]. In 1999, Circular No. 20-1999 requires all banks, financial, investments companies that operate in the UAE to adopt IAS. This was

[27] The first Law to regulate the accounting and auditing practices in Kuwait back to 1962 by Law No. 6 and amended by Law No. 3-1965 which then replaced by Amiri Decree No. 5-1981 and Commercial Law No. 68-1980. Company Law No.15-1960 precedes the board of directors to prepare and distribute to shareholders the audited Balance Sheet and Income Statement according to generally accepted accounting standards (GAAP).

[28] Three steps are: 1) Countries comparative studies of accounting profession from 1981 to 1982), 2) Conceptual framework for accounting and auditing stage from (1982-1986) and 3) 1992 establishment of SCOPA. SCOPA's 13 board of directors are appointed by The Minister of Trade, seven from the governments and its agencies and six certified Saudi accountants. Up to 2006, SOCPA has issued 11 interpretations, opinions and standards and 14 exposures drafts

[29] In fact, establishing SAMA at the beginning was to keep the gold and oil revenues on behalf of the kingdom. In 1966, SAMA issued the Banking Control Law and Regulation of Companies.

[30] This officially established by a Royal Decree No. (M/30)-1424 -Hijiri Calendar- as independent agency to regulate and issue rules for the provision of the Capital Market.

[31] Issued by Resolution No. 1/212/2006 and amended by Resolution No. 1-10-2010.

[32] The Function of the Currency Board was limited and purposed to replace other currencies that used in UAE. In 1973 Dirham is a first currency was circulated in the market and replaced the Bahraini Dinar, Qatari and Dubai Riyal. In 1980 Union Law No. 10-1980 changed the Currency Board to Central Bank of UAE. The law authorized the Central Bank to monitor and regulate the monetary, credit, supervision and banks policy.

followed by the issue of Notice No.3735-2006 designed to implement Basel II for all banks (full compliance is expected at Jan-2011). Then in 2000, the Abu-Dhabi Stock Market (ADX) was established by Law No. 3-2000 governing financial independent management. In the same year, the Dubai Stock Market was established as a second stock market in the UAE. After 1999, all financial statements were to be prepared according to IAS/IFRS. Governance mechanisms were not established prior to 2007. However, in 2007, the SCA released a code of corporate governance closely followed by the SCA Ministerial Resolution No. 518-2009 which mandates the code of corporate governance for all listed firms in the UAE from 2009. This code consists of 16 articles that are based on the OECD corporate governance principals.

**Table 2.1: Summary of GCC's background section**

| Items | **Bahrain** | **Oman** | **Qatar** | **K.S.A** | **U.A.E** | **Kuwait** |
|---|---|---|---|---|---|---|
| IFAC Membership | Yes | No | No | No | No | Yes |
| IFRS/IAS Status | 1992 | 1986 Yes | 1999FF | FF, 1994 | FF, 1999 | Yes:1990 |
| Security Market | 1987 | 1988 | 1995 | 2003 | 2000 | 1983 |
| Capital Authority Market | CB | 1998 | 1995 | 2003 | 2000 | 2012 |
| Central Bank establishment | 1973 | 1974 | 1993 | 1952 | 1973 | 1986 |
| *Auditor Number | 1 | 1 | 2 | 2 | 3 FF | 3 FF |
| *Breaching Laws | No | Yes | No | No | No | Yes |
| +Local ACC. Standards | No | No | No | Yes | No | No |

FF: only for financial firms;
CB: Central Bank
* Al-Shammari et al. (2008)
+ Local stock exchange markets websites.

## 3. MARKET RISK: CONCEPTUAL AND INSTITUTIONAL BACKGROUND

Market risk is the risk of potential fluctuation of fair value or cash flows or earnings as a consequence of changes in market prices such as the risk of interest rate price change, currency exchange change, equity price change and other commodities change risks (BCBS 2001). The reporting and regulatory requirement framework for the financial sector in the GCC to some extent is not diverse as compared to that of global financial institutions. Regulation is formed by different bodies, including Basel Committee, International

Accounting Standards Board (IASB), Central banks, and local accounting standard such as in K.S.A.

Globally, the basic risk regulatory publication dates back to 1998 when the Basel Committee encouraged financial institutions to achieve greater transparency, effective and timely release of information (Woods et al. 2008). At that time, the qualitative and quantitative development of risk disclosures was general in nature, and often lacked explicit detail of how to manage those risks. Financial institutions had the option to measure internal risk using models such as Value-at-Risk (VaR) and stress test those models using various assumptions and scenarios (Basel II, 1998). Followed by the final draft "Pillar 3-Basel II" in 2004, the disclosure requirements were clearly specified. Compliance with Basel II requires firms to provide qualitative and quantitative disclosures relating to capital structure, capital adequacy, market, credit; and liquidity risks (Basel Committee, 2006). The quantitative and qualitative market risk disclosures requirement was confirmed under the "Framework for supervisory information about derivatives and trading activates". BASEL illustrates that quantitative disclosures should be understood in the context of qualitative information (BCBS 1999).

The disclosure of sensitivity analysis relating to market risks commenced with the release of Financial Accounting Standard Board (FASB), *FAS-119-1994: Disclosures about Derivative Financial Accounting Standard* in the U.S. (Woods et al. 2009). However, that standard has been criticized for its lack of informativeness relating to derivatives disclosures. For instance, Wong (2000) finds that market risk disclosures (proxy FX) under FAS-119 are insignificant and inconsistent with the derivative position and stock price. Hence, the Securities Exchange Commission (SEC) introduced *Financial Reporting Release No. 48 (FRR No. 48)* for market quantitative and qualitative risk disclosures. *FRR No. 48* permits three formats of market risk disclosures comprising Value-at Risk, Sensitivity Analysis, and

Tabulation (see *market risk disclosures formats section*). Overall, studies that use *FRR No. 48* as a proxy for market risk disclosures find that *FRR No. 48* is informative of derivative positions. For instance, Wong (2000) finds that FRR No. 48 is designed to overcome issues that *FAS-119* does not cover. In 2000, the FASB issued *FAS-133 Accounting for Derivative Instruments and Hedging Activities* to improve market risk disclosures (Woods et al., 2009). Similarly, *FRR N. 48 and FAS-133* in the U.S. and in the U.K.- Financial Reporting Council (FRC) in 1998 issued *FRS 13- Derivatives and other Financial Instrument Disclosures*, effective from May-1999[33].

Until 1995, the IASB did not mandate disclosure of financial risk information in the GCC countries. The first standard published by the International Accounting Standards Committee (IASC) on qualitative and quantitative disclosures related to financial instrument risk was *IAS 32: Financial Instruments: Presentation* (IASC, 1995). *IAS 32* mandates disclosure of market risk (interest rate and currency risk), credit and liquidity risks. This standard was followed by *IAS 30:- Disclosures on Financial Statements of Banks*, which mandates further disclosure of risk information for banks and other financial institutions. Further, *IAS 30* supplements other risk standards for disclosures such as *IAS 32*. In 2008, the IASB pronounced *IAS 39: Financial Instruments: Recognition and Measurement* (effective from January 2001). *IAS 39* was first issued by the IASC in 1999. It has shifted the risk disclosure requirements from *IAS 32* (Woods et al. 2008)[34]. In 2005, the IASB published *IFRS 7* (effective from January 2007). *IFRS 7* was issued to complement *IAS 32* and *IAS 39*, to remove the duplicative disclosures of *IAS 32* and to supersede *IAS 30*. Moreover, *IFRS 7*

[33] All entities including non-financial institutions and insurance companies are required to comply with FRS 13, since at least one of its capital instruments that is listed or publically traded on stock market. FRS 13 also requires narrative and numerical market risk (interest rate and currency), liquidity, fair value and hedging activates disclosures. Further, FRS 13 requires all entities to disclose at least one of these methods (Sensitivity Analysis, VaR, Gap Analysis and other methods) or to disclose a combination of approaches for their market risk exposures.

[34] Simultaneously, as many risk measurement techniques that gained acceptance by many entities, IASB International Accounting Standards Board (IASB) in 2004, progresses the ED International Financial Reporting Standards 7:IFRS 7: Financial Instruments : Disclosures.

simplifies market, credit, concentration and liquidity risk disclosures (IASB, 2005). Qualitative and quantitative disclosures of market risk exposures are required for all public companies and it does not provide any separate guideline for financial institutions. Further, *IFRS 7* allows reporting entities to use at least one of the models to disclose their market risk, namely Sensitivity Analysis, Value-at-Risk and other stress test models. Australia adopted IFRS from 2005 and therefore the AASB standards are identical to the IASB standard. Equivalent to *IFRS 7*, the Australian Accounting Standards Board (AASB) issued *AASB 7: Financial Instruments: Disclosures*, to complements *AASB 132- Financial Instruments: Presentation* and *ASSB 139- Financial Instruments: Recognition and Measurements*. In this standard, entities are required to disclose qualitative and quantitative information about their risk exposures. Also, *AASB 7* requires the reporting entities to disclose at least of the potential market risk disclosures formats such as Sensitivity Analysis and Value-at-Risk.

Although GCC countries adopted IAS/IFRS, listed firms were largely reluctant to comply with risk disclosure requirements (Al-Shammari et al. 2008; IFC/Hawkamah 2008). Risk disclosures requirements are not well covered in the GCC code of corporate governance (Hawkamah 2010). The OECD (2004) survey finds that only 9.1% listed banks and 26% non-bank listed firms disclose material foreseeable risk factors. In addition, the IFC/Hawkamah (2008) survey documents that 76% of banks and 69% of non-banking listed firms do not consider disclosure as an effective tool to maintain shareholders value. Prior studies also note that companies in the GCC publish less information about their risk exposures (e.g., Kamla and Roberts 2010).

Furthermore, in all GCC countries (except for KSA), the corporate governance code requires an audit committee to review firms' risk management systems and policies. The KSA code of corporate governance requires the board to look after the risk management process. The corporate governance code in Bahrain requires the internal auditor to review the

adequacy and effectiveness of the company's risk management process, while for other countries in the GCC, there is no such provision. In both the KSA and UAE, the corporate governance code is largely silent regarding risk disclosure. However, in Bahrain and Oman (and Qatar), the management discussion and analysis report (corporate governance report) requires disclosure of risk management. In Kuwait, the corporate governance code will become mandatory from 2016 and will require the board to form a specific risk committee to evaluate risk procedures and policies and to follow-up firms' risk management.

Moreover, all central banks in the GCC adopted Basel II (particularly pillar 3: Disclosure). Due to disclosure dissimilarities between Basel II (Pillar III) and IFRS 7 (financial instruments disclosures) in terms of risk disclosure requirements, the central banks in the GCC countries require firms to explain the material difference between accounting standard and Basel requirements. In sum, risk disclosure requirements in the GCC are not well developed, which give rise to noteworthy variation among the countries in terms of risk disclosure. Table 2.2 provides the risk management, disclosures and corporate governance regulation and practices in the GCC countries.

**Table 2.2: Corporate governance codes and provision for risk disclose**

| Items | **Bahrain** | **Oman** | **Qatar** | **K.S.A** | **U.A.E** | **Kuwait** |
|---|---|---|---|---|---|---|
| Year of release of corporate governance code | 2011 | 2002 | 2009 | 2006 | 2007 | 2010/2013 |
| Compliance of corporate governance code | Comply or explain | Mandatory | Comply or explain | Mandatory | Mandatory | Mandatory |
| Corporate governance requirement to disclosure risk management issues in annual report | Yes | Yes | Yes | No | No | No |
| RC formation | Voluntary | Voluntary | Voluntary | Voluntary | Voluntary | Mandatory after 2016 |
| Risk disclosure accountability | AC | AC | AC | Board | AC | - (RC after 2016) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Risk Management Induction | Yes | - | - | - | - | Yes |
| RC formation: under board or management? | - | - | - | - | - | Board |
| Provision for independent director in risk committee | - | - | - | - | - | - |
| Provision for qualified director in risk committee | - | - | - | - | - | - |
| Internal Auditor's review on the adequacy and effectiveness of the firm's risk management | Yes | - | - | - | - | - |
| Basel II ( Pillar III) | Yes | Yes | Yes | Yes | Yes | Yes |

### 3.1 Qualitative and Quantitative Market Risk Disclosures:

The FASB and *FRR No.48* require both qualitative and quantitative market risk disclosures, (e.g. FRR No. 48, section b paragraph 305). Although IAS/IFRS is mandatory in GCC, *FRR No. 48* has been adopted by international firms. Under *IFRS 7(paragraph 33)* qualitative disclosure requirement is common for all risk (credit, liquidity and market risk) exposures. Quantitative risk disclosure requirements are specified as individual paragraph for each risk type. For instance, for market risk exposures, paragraph *IFRS 7* 40-42 provides guidelines for the quantitative disclosures for each individual market risk type (e.g. interest rate, currency risk and equity price risk).

### 3.2 Qualitative Market risk Disclosures based on IFRS7:

1- Entities shall disclose the market risk exposures and how these exposures arise, such as the description of gross and net of risk transfer and risk mitigation transaction.

2- Entities shall provide qualitative description of exposures risk management, including the objective, policy, procedures and methods that used to measure the market risk, such as, the

scope and nature of reporting and measurement system. At least one of the effects of reporting figures should be reported (e.g. the effects to cash flow and fair value).

3- Entities shall disclose the change in methods, policy and procedures, if the change was applied, sufficient reasons shall be provided to explain that change (e.g., from VaR (last year) to Sen (current year)).

**3.3 Quantitative Market risk Disclosures: formats:**

**3.3.1 Sensitivity Analysis***:* (hereafter Sen) is a disclosure format that measures the potential loss in future income, fair value, and cash flow for market risk exposures, arising from a hypothetical change or reasonably possible change in over a short time-frame. The effects of the potential loss should show a decline in profit / loss and equity, or cash flow. Under *FRR No. 48,* any hypothetical change should not be less than 10 percent, while *IFRS 7* does not specify the hypothetical change unless the entity believes that it can estimate a reasonable rate. Further, IFRS 7 does not mandate disclosure of a worst case scenario. Multi-scenario and stress tests are voluntarily encouraged. Under both standards, disclosure of a time-frame of estimated risk assessment is required and should not exceed one year. *Figure 1* shows a multi-sceneries sensitivity analysis for the change of 15% or $\pm 150$ basis points, 10% or $\pm 100$ basis points and 5% or $\pm 50$ basis points, in OMR' 000, at the end of the year, average, maximum and minimum amount level, will increases (reduce) the net interest income, under earning and economic value perspectives.

3.3.2 Value-At-Risk (VaR): is a disclosure format that measures the highest potential loss in future cash, earnings and fair value over a selected period (holding or horizon period) with a likelihood of occurrence or probability in most cases at the 5% level (at 95% confidence level). There are several methods to calculate VaR's loss probability such as historical market data, a variance-covariance method or via Monte Carlo simulation. VaR is

considered a worst case scenario as it measures the lowest probability of potential loss might occur (Hodder and Mcanally 2001b). VaR also, summarizes the effect of diversification, leverage and probabilities of adverse price changes (Perignon and Smith 2010a).

**Figure 1: Sensitivity Analysis of Bank Muscat: Earning and Economic perspectives:**

The effect of different rate shock under Earnings perspective and Economic value perspective is given below:

| | +200 bps RO'000 | -200 bps RO'000 | +100 bps RO'000 | -100 bps RO'000 | +50 bps RO'000 | -50 bps RO'000 |
|---|---|---|---|---|---|---|
| **Impact on net interest income** | | | | | | |
| At 31st December | (3,261) | (2,075) | (2,028) | (160) | (1,422) | (80) |
| Average for the period | (3,234) | 119 | (1,907) | 738 | (1,251) | 379 |
| Maximum for the period | (4,144) | (2,075) | (2,339) | (160) | (1,446) | (80) |
| Minimum for the period | (2,256) | 1,363 | (1,506) | 1,329 | (1,128) | 683 |
| **Impact on economic value** | | | | | | |
| At 31st December | (79,050) | 84,549 | (40,974) | 41,624 | (21,230) | 20,623 |
| Average for the period | (65,023) | 73,287 | (33,777) | 35,456 | (17,410) | 17,446 |
| Maximum for the period | (79,050) | 88,304 | (40,974) | 42,473 | (21,230) | 20,845 |
| Minimum for the period | (54,820) | 61,168 | (28,328) | 29,691 | (14,514) | 14,634 |

*Source: Bank Muscat Annual Report: 2007.*

As provided in *Figure 2*, the National Bank of Bahrain (NBB) in 2009 used VaR to calculate each single type of market risk exposure using 99% confidence level within a 10 days holding period, by applying a Risk-Metrics Methodology. The potential loss is reported at the end of the year, as average, maximum and minimum levels. The average number (figure 2) in 2009 for Foreign Currency Exchange from NBB annual report, on average, the trading portfolio of interest rate 1377 million, for next trading day, 95% confident that NBB expects that the loss from foreign currency exchange will not excess 1377 million Bahrain Dinar or only 5 percent probability of occurring loss will be more than 1377 million Bahrain Dinar.

**Figure 2: National Bank of Bahrain VaR market risk disclosures 2009**.

32. MARKET RISK

**a)** The principle tool used to measure and control market risk exposure is Value-at-Risk (VaR). The VaR is the estimated loss that will arise on the trading portfolio over a pre-defined time horizon from an adverse market movement for a specified confidence level. Based on the approval of the Central Bank of Bahrain, the Bank has been computing market risk using an internal model based on RiskMetrics methodology since 1999. The VaR model used by the Bank is based upon a 99 percent confidence level and assumes a 10 day time horizon.

The summary of the VaR position of the Bank at 31 December 2009 and during the period is as follows:

| | 2009 | | | | 2008 | | | |
|---|---|---|---|---|---|---|---|---|
| Amounts in BD'000 | **At 31 Dec** | **Average** | **Maximum** | **Minimum** | At 31 Dec | Average | Maximum | Minimum |
| Foreign currency risk | **1,025** | **1,377** | **1,704** | **912** | 1,705 | 1,326 | 1,791 | 1,025 |
| Interest rate risk | **440** | **256** | **548** | **17** | 87 | 68 | 160 | 27 |
| Other price risk | **258** | **254** | **269** | **218** | 218 | 102 | 218 | – |
| **Total** | **1,723** | **1,887** | | | 2,010 | 1,496 | | |

The limitations of the VaR methodology are recognised by supplementing VaR limits with other position and sensitivity limit structures, including limits to address potential concentration risks within each trading portfolio. In addition the Bank uses a wide range of stress tests to model the financial impact of a variety of exceptional market scenarios on individual trading portfolios and the Bank's overall position.

*Source: Annual Report NBB 2009.*

**3.3.3 Tabular Analysis*:*** (hereafter Tab) is a format that presents the market risk of fair value changes in financial instruments (e.g., future cash flow of contracts term based on expected maturity dates for at least five years)[35]. For instance, if a company A wants to disclose Tab for interest rate risk, it should disclose the instrument type, maturity, average rate, fair value of the end of each (combined) year(s) that is (are) disclosed and sensitivity tab (see *Figure 3)*. In this format the market risk is not explicit, but sensitive instruments shall be categorized according to common characteristics such as based on functional currency rate risk. Tab tabulates market risk sensitivities based on assets and liabilities (Hodder & McAnally, 2001b). By this format the reader should be able to expect the cash flows from the firms' financial instruments (Hodder & McAnally, 2001b).

[35] FRR No. 48 does not require any comparable equivalent previous year figures, but aggregate amount is required.

**Figure 3: Tabular Analysis Interest Rate position of assets and Liabilities:**

The Bank's interest rate sensitivity position of assets and liabilities, based on the contractual repricing or maturity dates, whichever dates are earlier, is as follows:

| | Effective annual Interest rate % RO '000 | Floating rate or within 3 months RO '000 | Months 4 to 12 RO '000 | Years 1 to 5 RO '000 | Over 5 years RO '000 | Non interest sensitive RO '000 | Total |
|---|---|---|---|---|---|---|---|
| 31 December 2007 | | | | | | | |
| Cash and balances with Central Banks | 0 to 2.75 | 100,000 | - | - | 2,129 | 385,783 | 487,912 |
| Placements with banks | 5.13 | 461,199 | 113,332 | - | 13,271 | - | 587,802 |
| Loans and advances | 7.65 | 767,527 | 556,221 | 730,105 | 633,010 | - | 2,686,863 |
| Investments | 4.62 to 5.1 | 46,855 | 28,038 | 61,539 | 81,666 | - | 218,098 |
| Property & equipment and other assets | None | - | - | - | - | 237,050 | 237,050 |
| Total assets | | 1,375,581 | 697,591 | 791,644 | 730,076 | 622,833 | 4,217,725 |
| Deposits from banks | 4.74 | 541,725 | 106,173 | - | 15,338 | - | 663,236 |
| Customers' deposits and Certificates of deposit | 2.63 | 708,747 | 598,879 | 689,818 | 338,915 | - | 2,336,359 |
| Unsecured bonds and floating rate notes | 6.0 to 6.25 | 111,650 | - | - | 54,803 | - | 166,453 |
| Other liabilities and taxation | None | - | - | - | - | 315,607 | 315,607 |
| Subordinated liabilities | 6.8 | - | 38,500 | - | 70,000 | - | 108,500 |
| Shareholders' funds | None | - | - | - | - | 627,570 | 627,570 |
| Total liabilities and Shareholders' funds | | 1,362,122 | 743,552 | 689,818 | 479,056 | 943,177 | 4,217,725 |
| Total interest rate sensitivity gap | | 13,459 | (45,961) | 101,826 | 251,020 | (320,344) | |
| Cumulative interest rate sensitivity gap | | 13,459 | (32,502) | 69,324 | 320,344 | - | - |
| In USD '000 | | 34,956 | (84,421) | 180,062 | 832,062 | - | - |

*Source: Bank Muscat Annual Report: 2007.*

Overall, the international and U.S. accounting standards and laws have enabled entities to voluntarily disclose some aspect of qualitative and quantitative market risk exposures. For instance, although, only material risk must be disclosed, the *IFRS 7* voluntarily allows entities to disclose immaterial risk exposures. Further, *IFRS 7* requires companies to disclose the hedging instruments, trading, non-trading and mitigating devices that used to managed market risk exposures.

## 4. THEORETICAL FRAMEWORK

Accounting disclosure is a meaningful monitoring element to control managers' behaviour and makes them more accountable (Jensen and Meckling 1976). Accounting disclosure provides two significant functions in market based economies (Beyer et al. 2010). First, accounting disclosure helps to measure the feasibility of any investment opportunity - "ex-ante role"[36]. Second, disclosure provides fund providers with the ability to watch their fund allocations - "ex-post role"[37](Beyer et al. 2010).

**4.1 Information asymmetry** or "lemons problem" refers to the inequality of acquisition of information between fund providers ("outsiders") and controllers ("insiders") which could disrupt a capital market's function (Akerlof, 1970). To explain the theory, consider a situation where projects have negative returns and positives returns, the entrepreneur claims that projects with negative returns as positive returns' projects. If the investors are unable to recognize the positive returns projects, investors will achieve an average of the returns of both projects. Hence, the presence of information asymmetry means capital markets will overvalue the negative projects and undervalue the positive projects.

LaFond and Watts (2008) and Bagehot (1971) posit that trading based on information affects the spread between bid-and-ask prices. Therefore, the investors with more private information will increase their return by larger bid-ask spread. Furthermore, from informed and uninformed participants' perspective, Diamond and Verrecchia (1991), suggest that high quality accounting disclosure can reduce information asymmetry between investors and managers. Using an Information Based Trade model "PIN", Easley and O'hara (2004) theoretically demonstrate that securities with higher private information compared to public information gain higher equilibrium rates of return[38]. Agency theory suggests that the separation of ownership and control also helps managers to acquire information about the

[36] Expected event (e.g. expected rate of return)
[37] Actual rate of return
[38] Empirically, Easley et al., (2002) predict this conclusion.

current and future performance of the company before the owners or investors (Watts and Zimmerman 1990). Thus, managers could exploit their advantage of superior knowledge, unobserved by the owner, to engage in practices to increase their own welfare.

**4.2 Agency Theory***:* Agency theory is defined as a contractual relationship between agent and principal. The agent has legal and economic commitment towards the principal. The principal employs an agent based on experience and qualifications to perform activities on the behalf of the principal (Godfrey et al. 2010). Jensen and Meckling (1976) suggest that when ownership is separated from the control, managers become motivated to serve their personal interests at the expense of shareholders' interests through expropriating shareholders' funds. For instance, if the owners acquire equity in company A, managers could expropriate the funds via perquisites, high compensation, making risky investments, shirking responsibility and other activities that could harm the owners (see Godfrey et al. 2010; Jensen and Meckling 1976; Smith Jr and Warner 1979). Any loss or expense that incurs from such activities are considered as agency costs (Taylor 2008).

A second form of agency cost could exist between directors and shareholders (Fama and Jensen 1983; Williamson 1979). These costs can be incurred when directors are contracted to serve the shareholders' interest protection from the management's opportunistic behaviour, agency problems may occur when directors seek welfare maximization for themselves by using and taking the actions that detrimental to shareholders but beneficial for them (Tricker 2000).

Misalignment between large and small shareholders is another potential problem raised as part of agency theory. Although, large shareholders can improve the firm's total

interest maximization (Grossman and Hart 1988; Shleifer and Vishny 1986) [39], a "controlling agency problem" could arise as a consequence of block-shareholder influence. That arises when major shareholders use their majority of shares to maximize their interest at the expense of minority shareholders (Shleifer and Vishny 1997). For instance, voting rights of major shareholders may exceed their cash flow rights and representation of board of directors' memberships (Ali et al. 2007). Barclay and Holderness (1989) argue block-holder may receive more private benefits through controlling facilities. Hence, the alignment of minor and major shareholders is not completely achieved (Al Farooque et al. 2007).

Opportunistic behaviour by management could be minimized by aligning agent's workload and motivation and shareholders' interest maximization. For instance, Jensen and Meckling (1976), suggest formal contracts between the agents and owners will ameliorate these costs. Mechanisms such as governance policies and procedures, accounting covenants, debt contracting, contractual guarantees, compensation arrangement, quality auditors, audit committees, risk committee and independent board of directors are among other procedures the best to serve the contracting efficiency (Beatty and Weber 2003; Douglas 2003; Emanuel et al. 2003). Another example is that remuneration packages may motivate managers to transfer monitoring costs to themselves (Jensen and Meckling 1976; Watts and Zimmerman 1990). For instance, Godfrey et al. (2003), argue that if managers are compensated by a percentage of the company's profit alongside other compensation types, this may cause managers to focus more on maximization of the shareholders welfare.

Complex business structures, risk management, the increasing reliance on financial instruments and international transactions have caused firm management to place greater consideration towards risk reporting. Thus, in recent years, risk disclosure is an area of

[39] Demsetz (1986) supports the large shareholders argument, that if more outsiders represent in the board that could shift to enhance the firm's value.

interest to financial reporting regulators, practitioners and international researchers (Dobler 2008). Risk disclosure is important for outsiders to evaluate the risks of an entity's future economic performance (Schrand and Elliott 1998). In addition to the disclosure literature, risk reporting is considered beneficial for disclosing entities, giving rise to both a lower cost of capital (Solomon et al. 2000) and initiating disciplining effects on risk management and governance (Jorion 2002a).

Prior research on risk disclosure has to date been rather limited, the consequence and determinants of risk reporting studies in the GCC are virtually non-existent (Beretta and Bozzolan 2004). However, empirical studies also find large variations and deficits in risk reporting even in the presence of mandatory disclosure regimes (Dobler 2008). Yet, there is very little work on risk reporting incentives and their relation to regulation, in general, and even less going beyond the question of whether or not to impose mandatory disclosure, in particular the discretion that allowed in regulated disclosure such as with IFRS 7.

**4.3 Interaction of Mandatory and Voluntary disclosures:** Boot and Thakor (2001) find that voluntary disclosure strengthens or weakens private information production incentive based on whether the disclosed information substitutes or complements information processed by investors. They conclude that mandatory disclosure might have an impact if there is conflict of interest between managers and investors.

Consistent with this assertion, Admati and Pfleiderer (2000) contend that mandatory disclosures role is obvious when information asymmetry between firms and investors reduces firm’s value. Fishman and Hagerty (1995) show that a setting in which agents can choose not disclose all of their information, imposing mandatory disclosure improves the informativeness of that information.

### 4.3.1 Interaction of Disclosure and Investment Efficiency

Cheng et al. (2013) investigate the association between externalities of mandatory disclosure and investment efficiency. They find that adoption of IFRS improves investment efficiency and their result is influenced by legal enforcement strength, peer competition and industry competition. In addition, Ostberg (2006) constructs an analytical framework for voluntary and mandatory disclosures. He suggests that more moderate mandatory disclosure is favorable in that it increases firm's share price due to a reduction in rent seeking by insiders and thus improves investment efficiency. Ostberg (2006) argues that mandatory disclosure offers an advantage over voluntary disclosure through reduction in expropriation costs and an improvement in investment efficiency, while the absence of mandatory disclosure is worse-off for investors. In addition, Ostberg (2006) suggests that stringent disclosure is undesirable as it alleviates the expropriation problem (moral hazard) but exacerbates a debt overhang problem. Hence, positive NPV projects are not undertaken unless disclosure is partial. He concludes that mandatory disclosure is high in countries where investor protection is also very high. In frontier markets such as the GCC where the investor protection is weak, I expect to observe a moderate level of mandatory disclosure[40].

### 4.3.2 Association between Disclosure and Cost of Equity Capital:

Jorgensen and Kirschenheiter (2003) find a firm that voluntary discloses risk exposures maintain a higher share price than one that does not and imposing mandatory full disclosure of firm's risk lowers *ex-ante* share prices. It appears that mandatory disclosure forces firms not to disclose voluntary risk information to avoid incurring higher disclosure costs. The empirical evidence of Marshall and Weetman (2007) also show that managers provide less mandatory disclosure in regard to foreign currency exchange.

[40] For instance, Weak & strength enforcement index developed by World-Bank shows a moderate score index for GCC, from 2007 to 2011, with a mean score of 4 (Oman; Bahrain; Kuwait, Qatar; U.A.E), minimum of 3 and maximum of 5 in K.S.A. Also, the investor protection index extracted from WORLD-BANK, from 2007 to 2011, illustrates (on average) K.S.A scores the highest investor protection index of 6.48, while the U.A.E scores the lowest investor protection index of 4.3).

Einhorn (2005) provides a model on the interaction between mandatory and voluntary disclosures. He suggests that voluntary disclosure should be understood from the mandatory disclosure context and vice versa. More specifically, he posits that discretion in disclosure strategies of firms is influenced by the level of mandatory disclosures. He finds that mandatory disclosures have significant impact on voluntary disclosure strategies. In the Einhorn (2005) model, firms reduce voluntary disclosure when there is more discretion in mandatory disclosure, while increasing voluntary disclosure when there is flexibility with mandatory disclosures. He documents that disaggregated disclosure is more informative.

Discretion in Mandatory Disclosure ("disaggregation") enhances the usefulness of information to investors (Einhorn 2005). The SEC (1999) suggests that disaggregated accounting information is useful to investors who can use this information to make better informed decisions. Hirst et al. (2007) document that under a voluntary disclosure setting, investors believe disaggregation in management forecasts impedes managers to be able to manipulate earnings, and provides more relevant information. Furthermore, Verrecchia (2001) posits that both mandatory and voluntary disclosures can alleviate information asymmetry through an increase of disclosure's quality and choices. Dye (1986) also predicts an interaction effects between mandatory and voluntary disclosures. In a recent study, Elshandidy et al. (2013) provide empirical evidence on the impact of aggregated disclosures, both mandatory and voluntary, on firms' risk level.[41]

Based on the theoretical foundation and empirical evidence of (Einhorn 2005; Jorgensen and Kirschenheiter 2003; Ostberg 2006), I develop a market risk disclosure index that determines the extent to which firms disaggregate or discretionary disclose mandatory market risk disclosures in their annual reports. When firms disaggregate market risk disclosures, I expect to observe a high level of quality and quantity of market risk items that

[41] Firm's level risk is measured by systematic risk (beta), financing risks and risk-adjusted returns and levels of stock return variability.

make up the index. Therefore, more disaggregation in mandatory market risk disclosures is effective in revealing firms' private information to the public. This in turn reduces uncertainty, improves firms' investment efficiency and reduces the cost of equity capital (Dobler 2008; Jorgensen and Kirschenheiter 2003; Ostberg 2006).

In addition to information asymmetry issues, agency theory and disclosure theories such as mandatory and voluntary interaction view and cheap-talk models, I also incorporate a number of theories that apply accounting/finance models such as resource-based theories, stakeholder theory and legitimacy theory.

## 5. LITERATURE REVIEW

Prior disclosure studies investigate several theoretical frameworks. For instance, agency theory is employed in many risk (e.g., market risk) studies. Other studies link risk and market risk disclosures studies with capital management structure (e.g. cost of equity capital). Information asymmetry and legitimacy theory are also used to explain market risk disclosures (see Healy and Palepu 2001). Other types of market risk disclosures studies employ the ex-ante and ex-post disclosure role through derivatives financial instruments studies (Gay 2011). In this section, market risk disclosures studies are viewed from two prospects: the consequences of market risk disclosures and economic determinants of market risk disclosures. The following discussion reviews major U.S. and other international market risk disclosure studies. Findings from this section would help to explain market risk disclosures trends for current and future periods.

### 5.1 Consequences of Market Risk disclosures studies

#### 5.1.1 Informativeness and Value Relevance

Schrand (1997) uses a sample size of 208 saving and loan institutions to examine the relationship between off and on balance-sheet derivatives and interest rate sensitivity. She finds that on-balance-sheet and derivatives exposures are significantly positively associated with market interest rate sensitivity, while, off-balance-sheet derivatives has a positive association with interest rate sensitivity. Further, she finds that the significant association is dependent on firm size[42].

Using 287 U.S. multinational public firms, Jorion (1990) tests whether exchange currency rate exposures is sensitive to the value of firms[43]. Jorion applies the General Least Square (GLS) model for pooled data, and finds significant cross-sectional differences in foreign currency of U.S. multinational firms. Firms that do not have foreign operations and are not exposed to currency risk show little differences in their currency rate exposures.

Barton and Bodnar (1994) select a sample of U.S. firms based on the following criteria that firstly, consistently report higher foreign currency adjustment in previous years and secondly, negatively correlated with trade weight index change of U.S. dollar, from 1978 to 1983 and from 1984 to 1990. Stemming from limitations of the prior research which failed to document a significant correlation between simultaneous stock returns and dollar fluctuations (Barton and Bodnar 1994). The former have corrected the sample selection bias and applied a lagged change variable in the dollar to correct for mispricing[44]. Despite their

[42] For large firms, the market interest rate sensitivity is significantly associated to the derivatives not to maturity gap or Tab, vice versa in smaller firms. In this paper, Schrand (1997) straight criticizes the FASB's disclosures requirement for derivatives, as the FASB-119 requires companies to disclose the market value of the instruments but not the impact of derivatives on a firm's portfolio.

[43] Using time-series regression coefficient to measure the change of the firm' value to change of currency rate. Firm's value is measured by rate of return of firm' common stock The sample size is sub-divided into 6-sub sample; 1) 40 multinational firms with low-dispersion, 2) 40 portfolios with high dispersion, 3) 40 firms with lower foreign operation, 4) 40 largest local firms without foreign operation, 5) 40 firms with highest percent of foreign operations (using foreign total sale) and 6) 14 foreign firms.

[44] Mispricing arises as the complexity set modelling and estimating in this relationship and the short period of dollar floating exchange rates (since 1973). Hence, stock price adjustments as a result to movements in the U.S. dollar should take longer time.

claim to avoid the limitations of prior research, they fail to report any correlation with the contemporaneous dollar change for abnormal returns of those firms[45].

To test the usefulness of *FASB No. 199* derivatives disclosures of U.S. manufacturing firms, Wong (2000) tests whether the stock market has contemporaneous information of on and off balance sheet currency exposure and derivatives disclosures. As a robust check of the first hypothesis, Wong (2000), expects current year currency exposures could predict the next year's currency exposures (usefulness hypothesis). He provides mixed and inconsistent conclusion for both hypotheses. Thus, the aggregated and disaggregated fair value disclosures do not fully allow an assessment of currency risk exposures.

Rajgopal (1999) provides early evidence concerning the informativeness of quantitative market risk disclosures using Tab and Sen Analysis (proxy for *FRR No. 48*). In particular, Rajgopal (1999) tests the association between commodity price risk and the sensitivities of firms' equity returns to change in oil and gas prices [46]. He uses 149 firm year observations for firms that disclose Tab format (89 firm year observations for Sen Analysis from 1993 to 1996). Firms that disclose Tab have a negative association with firm betas, while for firms that disclose Sen Analysis have a significant positive association with firm betas.

Ahmed et al. (2004) find Tab format exhibits significant association between current (one year) interest income and subsequent year interest income. Hence, they suggest that the Tab format is useful to predict the banks' market risk disclosures. However, they find no

[45] While the lagged change of dollar' value coefficient is more readable for the sub-sample from 1978 to 1983 than to sub-sample from 1984 to 1990. They interpret this result due to the investors error to select the information that when predicting the value change of the firm.

[46] Rajgopal (1999) uses Tab and Sen as a proxy for the FRR .49 for Oil and Gas firms, because, firstly, the Oil and Gas firms early disclosing similar commodity price risk model to those that required under FRR. 48, though the requirement of SFAS No. 119 and SFAS No. 69. Further, by choosing Oil and Gas sample, he provides advantage to this study as the Oil and Gas firms disclose clear commodity price risk exposures that usually managed through derivative instruments.

evidence for cross-sectional differences of the sensitivity interest rate for the subsequent three years; even after controlling the banks' size and capital.

In contrast to prior studies, Linsmeier et al. (2002) investigate daily trading volume sensitivity to underlying market rate and price changes. They employ Kim and Verrecchia (1994) model[47] using 222 non-financial firms for all market risk exposures (184 firms for interest rate, 144 firms for foreign currency exchange, and 58 firms for commodity price). They find that before the release of *FRR No. 48* (Pre-FRR), the volume sensitivity coefficients (a proxy for trading volume) are significantly and positively associated with market risk disclosures (underlying market rate and price change). However, these coefficients are significant and negatively associated with the underlying market rate and price changes following the release of market risk disclosures (*FRR No. 48*). Furthermore, in respect to interest rate exposures they find that both Sen and VaR market risk formats are less effective than Tab format, whereas for currency foreign exchange, Tab format is less effective compared to Sen and VaR formats to reduce the uncertainty and diversity of opinion among investors.

Using 22 oil and gas producers and 20 firms as a control sample (non-disclosers of market risk exposures), Thornton and Welker (2004) examine the informativeness of market risk disclosures (*FRR No. 48*) on share price's sensitivity to commodities price (underlying market rate and price changes)[48]. First, Thornton and Welker (2004) find that firms that disclose Sen or VaR formats for market risk (commodity price) have experienced a significant shift in betas compared to the control sample (non-disclosers). Second, they test

[47] Which builds based on the reactions of volume and price at the time of the public announcement and its characteristics and to the traders' beliefs, to capture the uncertainty and diversity of opinion.

[48] Based on (e.g., Dontoh and Ronen 1993; Hirst and Hopkins 1998; Kim and Verrecchia 1994; Linsmeier et al. 2002; Verrecchia 2001), Thornton and Welker (2004) hypothesize that share price is sensitive to new and précised signals' increases and when investors hold heterogeneous private information (diversity of opinion) of market risk exposures before the release of mandatory requirement of FRR No. 48

whether this significant shift in betas is associated with 10-K[49] disclosures, or with market risk disclosures. However, neither 22 disclosers nor 20 non-disclosers show any significant shift of commodity beta before FRR No.48.

Based on 222 foreign exchange derivatives from non-financial firms (500 Fortune), Sribunnak and Wong (2006) examine the association of Sen Analysis disclosures and market-based risk measures[50]. They find users for derivatives-level fair value sensitivity have a negative relationship with future market-based risk, while users for entity-level earnings sensitivity have a positive association with future market risk measures[51].

Other studies consider the informativeness of VaR in the U.S. banking industry. The study of Berkowitz and O'Brien (2002) is considered to provide some of the first evidence of bank's performance using VaR[52]. They find that 99 per cent of VaR figures tend to be very conservative relatively to what banks disclose at the 99$^{th}$ percentile of daily trading returns and were imprecise for some banks (Berkowitz and O'Brien 2002). They find that GARCH model provides a lower VaR return volatility, thus, it is better predictive than banks' VaR.

Using eight listed banks spanning the period 1994 to 1999, Jorion (2002) provides evidence of market risk disclosures (as proxied by VaR format), through examining the

[49] 10-K is a comprehensive summery of public firm's performance that must send to shareholders and required by SEC.

[50] After cleaning out the sample size from the sample selection bias using Hechman (1979) two-stage procedures, a total of 222 firms is obtained. In first stage "Probit selection model" is used to distinguish the foreign currency derivatives users that report Sensitivity Analysis format. Then in second stage, they regress the predicted probabilities from Probit model "inverse Mills ratio or Lambda" as an explanatory variable. Hence the present sample is represented by 55% of the foreign currency derivatives users. After selecting the final sample, Sribunnak and Wong (2006) notice a comparability's issue from the foreign currency Sensitivity Analysis users, that users disclose Sensitivity Analysis either on derivatives level and entity level and report the effects "potential loss" of their market risk disclosures in different measures (fair value, cash flow and earnings). Then they sub-sample the selected firms into 1) Derivatives –level fair value sensitivity users and 2) Entity-level earnings sensitivity users.

[51] After controlling derivatives users model "dependent variable is stock return model" using, lagged debt to market ration, book to market value and total foreign sales over total sales, the entity-level users to test market risk measures, shows higher predictivity power, while for the derivatives-level does not show any significant predictive power.

[52] They investigate the daily VaR's performance of 6 multi-national banks including large US banks that have distribution of historical dollar trading return (profit and loss). Sample is selected based on US bank compliance to Basle market risk capital requirements. Their conclusion primarily is driven from two version (April copy) sample includes 600 daily observations and (May copy) has 25 per cent increase than the April copy, 750 daily observations.

relationship between quarterly VaR volatility and the absolute value of unexpected trading revenue[53]. He finds that unexpected volatility of trading revenue is positively associated with VaR in the next quarter for three banks. Therefore, Jorion (2002) concludes investors can use VaR figures for risk portfolios decision.

Lim and Tan (2007) study the value relevance of market risk disclosures by selecting 81 non-financial firms from 1997 to 2002[54]. They find a negative significant association between returns, earnings and VaR values. After controlling for other factors (e.g. market-to-book ratio, leverage and market value), the value relevance of earnings and earnings change are reduced[55]. In conclusion, Lim and Tan explain the result by arguing:

"*investors perceive the earnings of firms with substantial market risk exposure to be less persistent and thus discount to a lager extent the future earnings, leading to lower stock returns in the current period*" (2003, p. 366).

Bali and Cakici (2004) measure market risk disclosures- to explain the cross-sectional variation in the expected returns of non-financial firms from the NASDAQ, NYSE and Amex stock exchanges for the period 1963 to 2001. After applying the Fama and French (1992) method for calculating beta[56], regressing 1%, 5% and 10% VaR deciles with expected stock return, and controlling for liquidity and market capitalization (as a proxy for size), they find

[53] Jorion (2002) questions the accuracy valuation of VaR via "back-testing" method, as the original information to calculate VaR is not provided by preparers.

[54] They intend to examine the relationship between VaR number and the informativeness of earnings based on information asymmetry issue. They measure the returns-earnings relation by regressing returns (250 daily returns) with earnings and earnings returns (EPS scaled by begging year stock price). VaR is measured by total VaR numbers scaled market value at the begging of the year to remove the skewed distribution that created by firm's size.

[55] Adding alternative risk variable (beta), the association between VaR with earnings and VaR with earnings change still negative and significant, result shows VaR still negative and significant while the association between earnings and beta and earnings change and beta are negative but not significant. This suggests a higher VaR figures that disclosed by firm, has a lower earnings-returns association. However, Lim & Tan (2007) examine the relation between VaR numbers with other risk measures (total risk, excess risk, firms-specific risk and beta, result is consistent, that VaR disclosures is positively and significantly associated with other alternative risk measures

[56] They sorted all stocks by size to identify the docile break-points, and then allocated the stocks in to 10 size portfolios. Then they subdivided each size deciles into 10 portfolios on historical beta. Hence each stock is grouped is assigned into one of 10 size deciles and one of 10 beta deciles. 468 monthly returns are obtained from 100 portfolios from 1963 to 2001. They estimated beta from the sum's slopes from monthly return of the current and previous months. Bali and Cakici (2004) use three confidences level (99%, 95 % and 90%) of VaR measure to check the validity of VaR to explain the expected stock return, while only one holding time period "one month" is used.

that size and VaR provide empirical evidence to explain the cross-sectional differences in expected return. However, they find that Capital Asset Pricing Model (CAMP) model has no power to explain the expected return as the average stock return is negatively associated with beta at the company-level. As part of time horizon sensitivity, they regress time-series average coefficients of the slope for two subsamples for the monthly cross-sectional and yearly cross-sectional regression. Size, liquidity and VaR appear to be capable of explaining cross-sectional differences in returns; however, beta appears not to have sufficient predictive power[57].

### 5.1.2 Cost of Equity Capital

Chen and Gao (2010) use 24 commercial U.S. banks to examine the association between VaR values and the cost of equity capital from 1998 to 2008. They find a positive association between trading VaR activities disclosures and cost of equity capital[58]. This result is robust even after controlling for market capitalization and log average daily turnover measured as the number of stocks traded over total of stocks outstanding. They then conduct supplementary tests to check whether VaR's quality (as measured by bank's technical sophistication of banks) is incorporated into the cost of equity capital. The significant and positive result is robust.

Gay, Lin and Smith (2011) investigate the association between cost of equity capital and derivative use. They use 1541 firm year observations for the period between 1992 and 1996 and 2489 firm year observations from 2002 to 2004. They measure cost of equity capital by using the (Fama and French 1993) model. Gay et al. (2011) find firms that use of derivative financial instruments reduced firms' cost of equity capital by 24 to 8 basis points

[57] After repeating the regression based on portfolios-level, Bali and Cakici (2004) find all variables are capturing the cross-sectional differences. However, in term of R square, VaR provides better figure, even after controlling market size, book-to-market and liquidity.

[58] They use two measures to calculate cost of equity capital, 1) - Claus and Thomas (2010) and Easton (2004), for both measures they find significant and positive association.

compared to that of non-users. Then they extend the analysis to understand the sources of this reduction; they find clear evidence that was driven from lower Small and Big size factor (SMB). Finally, on average, derivatives users have 4.9% lower market beta compared to that of non-users. However, the relation between market risk disclosures and the cost of equity capital was not tested, especially from emerging type markets such as these in the GCC. In this study, I investigate how disaggregation of market risk disclosures impact firm's cost of capital. Then I investigate the role of the conservative auditor on disaggregation of market risk disclosures and the cost of capital.

### 5.1.3 Investment Efficiency

Prior literature investigates investment efficiency from a financial reporting perspective.[59] For instance, Biddle and Hilary (2006) investigate the relation between accounting quality and firm's level of capital investment efficiency. Using an information asymmetry setting, they find that under different measures of financial reporting quality and different econometrics specifications, a high quality of financial reporting improves investment efficiency. Biddle et al. (2009) contribute to Biddle and Hilary (2006) in which they provide empirical evidence about the relationship between accounting quality reporting and investment efficiency which is conditional on the firm likely to over-invest and under-invest. They find that firms with more cash are likely to over-invest and firms with more leverage are more likely to under-invest.[60] Furthermore, Chen et al. (2011a) provide evidence regarding the association between investment efficiency and financial reporting quality, but

[59] For instance, (Biddle et al. 2009) use four accruals quality developed by Dechow & Dichev (2002), 2) Accruals quality modified by Wysocki (2008), 3) - Li's (2008) financial disclosures transparency method (FOG Index)[59], and 4) Average of prior three methods. Chen et al. (2011) use accruals by Kothari et al. (2005), 2) Revenue-based measure by McNichols & Stubben (2008); Stubben (2010), 3) Accrual measure by Dechow & Dichev (2002) and finally 4) Average of above three methods.

[60] I also provide this rank sampling technique for my test in investment efficiency hypothesis see Chapter 4 Model 1 investment efficiency section.

for private firms. They find a negative association between investment efficiency and high quality financial reporting for the private firm is conditional on firms seeking bank loans. This conditional effect is positive for private firms that face tax pressures. Chen et al. (2011c) investigate the relation between government intervention in China and investment efficiency. They find that the association is weaker (stronger) for state (non-state) owned companies. Moreover, based on the accounting quality reporting hypothesis, Cheng et al. (2013) study the investment efficiency of firms that disclose the Mandatory Material Internal Control Weaknesses (ICW) required by Sarbanes-Oxley (SOX) Act. Hypothesizing that ICW is an instrument for financial reporting quality, they find prior to ICW, firms that highly over- and under- invest and after disclosing ICW, the investment efficiency of those firms improved. In this study, I examine the association of discretion in mandatory market risk disclosures and financial firms' investment efficiency. Then, empirically I re-test the (Einhorn 2005) model that firms with more discretion in mandatory disclosures, will provide credible voluntary disclosure, and in doing so, increase investment efficiency.

### 5.1.4 Summary on market risk and consequences studies

In this section, I review studies that investigate the consequences of market risk disclosures (e.g., value-relevant, cost of equity capital, informativeness and investment efficiency studies). Several papers investigate the consequences of market risk disclosures before and after the release of disclosure regulation (e.g. Pre & Post for *FRR No. 49*, *FRS 13*, and *AASB 7*). I incorporate *IFRS 7* in the market risk disclosures index. Several trends emerge from these studies. First, some studies focused on single or aggregate market risk exposures such as the effects on foreign currency change or interest rate exposures. Second, several papers used single or two formats as a proxy for market risk disclosures. These studies applied a notional dollar amount or dummy variables for firms that disclose market

risk formats. Third, other studies used a small sample size and suffer from selection biased problems. For instance, some studies use only firms that disclose market risk effects on earnings. Fourth, some papers exhibit certain econometrics issues (e.g. no robustness check of the main model test, and omitted variables). In addition, some studies use two stages squared equation (2SLS), however, they have not justified their use of instrumental variables' (IV). Finally, qualitative market risk disclosures are rarely examined in previous papers. Table 2.3 summarizes the consequences of market risk disclosures studies.

**Table 2.3: Summary of consequences market risk disclosures studies**

| Authors(s) | Dependent Variables | Independent Variables | Methodologies | Main Findings | Comments/issues |
|---|---|---|---|---|---|
| Schrand (1997) | -Market risk (IR) and derivatives (Tab) | - stock return<br>- Maturity Gap<br>-Hedging | -208 Saving and loan institutions.<br>- Two equation 2sls | - 86% of the saving and loan institutions have negative interest rate sensitivity.<br>- The significance result depends on firms' size. | - Use only interest rate as a proxy for Market risk.<br>- Use saving and loan firms.<br>- Only Sen & Quant. Only. |
| Marshall and Weetman (2002) | -Return of firm's common stock | Market Risk (FX) | - 287 Multinational US public Firms (Sample divided into 6 sample sizes based on foreign operations)<br>-Time-series regression (GLS and Pool regression) | - Firms that trading in no foreign operation and exposed to currency risk, show little difference in currency rate exposures | -Sample selection based on multinational US firms that means these firms would be able to hedge potential exchange at low cost.<br>-Exchange currency rate exposure only<br>- Sen Only & No theoretical link<br>-Quant. only Consequences & Determinates. |
| Barton and Bodnar (1994) | -Abnormal stock performance security | - Change of US exchange rate index | -208 (2264 observations)<br>multi-industry firms<br>- Contemporaneous and lagged, OLS regression. | - Fail to report correlation with the contemporaneous dollar change for abnormal returns of these firms.<br>-The lagged change of dollar' value coefficient is more readable for the sub-sample from 1978 to 1983 than to sub-sample from 1984 to 1990. | -Including variables (structure break) with no explanatory power which violating the OLS power and its assumption.<br>- Exchange rate only.<br>-Sen only & Quant. only. |
| Wong (2000) | -Market risk (FX) Notional amount. | - SFAS No. 119 Derivatives disclosures. | -145 firms (500 S& P) from 1995-1006<br>- OLS | - Aggregate and disaggregate fair value disclosures do not complement the notional amount to assess the currency risk exposures. | - 3 year time-series limitation generates measurement error and omitted variable.<br>-Excluding firm-level data adds construction of firm's specific exchange rate sensitivity & Quant. Only. |

| | | | | | |
|---|---|---|---|---|---|
| Rajgopal (1999) | -Firm equity Return | -Market risk Tab & Sen for Oil prices (Notional amount)<br><br>- Percentage of hedge Oil & Gas Reserves. | -149 observations firms 89 US Oil and Gas firms.<br><br>- Time-series regression approach suggested by Sefcik and Thompson (1986). | - Proxies Tab & Sen analysis format are significantly associated with O&G firms' stock return sensitivities to oil and gas price movements.<br><br>- The proxies Tab format and Sen format disclosures are not substitutable explanations of firms' risk ex-exposures.<br><br>- Usefulness of Tab and Sen Formats. | - Not using market risk disclosures based on SEC- FRR. 48 -1997.<br><br>-Firm after FRR. 48 -1997, only disclosing one format.<br><br>- Oil prices only.<br><br>- Tab & Sen & Quant. only |
| Ahmed et al. (2004) | -Net Interest Income<br><br>-Weekly stock return | - Rate Sen asset * IR earned on rate Sen asset.<br><br>- Rate Sen Liability * IR earned from rate Sen Liability.<br><br>- Other Sen * IR earned from other rate.<br><br>- Weakly change in IR (Notional amount). | - US Bank<br><br>-107 bank for Qualitative disclosures (Hedger, Speculator and No Clear Policy.<br><br>- Cross-sectional OLS regressions. | -Tab format associate Significantly to current (one) year interest income Tabular and next (second) year ahead interest income.<br><br>- Significant variation in Tabular market risk format based on sub-division of Hedger, Speculator and No Clear Policy. | -Tab only<br><br>-Interest rate only.<br><br>-Quant. & Sem-Quali.<br><br>-Change in asset size control has very high explanatory power this inconsistent with the assumptions of the static reprising gap model.<br><br>-Interaction between Gap * Interest rate is 50% explains the model “Very High”. |
| Linsmeier et al. (2002) | -Firm value (Number of shares traded divided by the number of outstanding shares). | -Squired Root (No. of shares traded by DJ Indus-trial Average firms divided by the number of shares outstanding for such firms.<br><br>- SQRT-Absolute value of stock retunes.<br><br>-SQRT –change IR & SQRT-change FX.<br><br>-SQRT-change in Commodity-related disclosures 1, otherwise 0. | -222 non-financial firms<br><br>-All market risk exposures<br><br>Pre and Post FRR. No. 48-97.<br><br>-GLS | Pre-FRR No. 48 the volume sensitivity coefficients (trading volume proxy) are significantly and positively associated with market risk disclosures.<br><br>However, Post-FRR. No. 48 coefficients converted to be significantly and negatively associated with underlying market rate and price changes. | -While they consider also all formats, they did not show reporting effects (e.g. Earning, cash flow and Fair Value) in regression models.<br><br>- Variables are scaled by square root.<br><br>- Disclosures format were included as a dummy variables and interaction variables.<br><br>- Using Kim and Verreccha’s (1994) theoretical model<br><br>- Typical study for our thesis. |

| | | | | | |
|---|---|---|---|---|---|
| Thornton and Welker (2004) | -Rate of Return | - Market risk disclosures (beta).<br><br>-Percentage of change of Oil and Gas prices.<br><br>- Dummy variable if firm disclose of quantitative market risk format.<br><br>-Dummy variable if firm disclosures at least one of qualitative policy, 0 if firms says immaterial. | -22 Oil and Gas firms.<br><br>-20 firms for non-market risk disclosers. | Firm discloses Sen or VaR format for market risk exposure (commodity price) have experienced a significant betas' shifts compared to the control sample (non-disclosers).<br><br>-Sen and VaR market risk disclosures formats are associated with commodity's betas shift. | -Small sample data reduce the generalizability of test.<br><br>- Usefulness of FRR No. 48, by comparing Pre & Post.<br><br>- Tab is not included, reporting effects and market risk exposure also not considered. |
| (Sribunnak and Wong 2006) | -Market risk (FX) using Sen Format 1, otherwise 0.<br><br>-Stock return | -Log MV, Lev, BV, Export F Sale, Gross notional amount of FX derivatives Scaled by mv of equity. | -123 final foreign exchange samples.<br><br>-Non financial firms (500 fortune)<br><br>-OLS, 2sls & Probit Lambda model. | - Derivatives-level fair value sensitivity users negatively associated with future market-based risk, while the entity-level earnings sensitivity users have a positive association with future market risk measures.<br><br>-Controlling derivatives users, entity level users regression is predictive, and derivatives level not. | -FX only<br><br>-Sen format only.<br><br>-Earning reporting effects.<br><br>-Small & sample selective sample bias.<br><br>- Consequences & determinants. |

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|---|---|---|---|---|---|
| Berkowitz and O'Brien (2002) | VaR daily disclosures. | Size | -6 non-public multinational banks, 750 daily observations.<br><br>-ARMA<br><br>-GARCH Residual. | -99 percent VAR figures conservative to what bank disclose of 99$^{th}$ percentile of daily trading retune.<br><br>-GRACH model provides a lower VaR return volatility, thus, it is a better predictive than banks' VaR<br><br>-VaR's deviation is positively associated with \|size\| of shock to return.<br><br>- Hence, VaR's forecast that prepared by banks is supposed to provide superior forecast, compared to GRACH model. | - Smaller sample size.<br><br>-Non-public data.<br><br>-Using VaR-only, irrespective to market risk formats.<br><br>- Mixed evidences between historical derivatives disclosures and potential market risk disclosures.<br><br>- GRACH model does not consider the current trading portfolio's risk.<br><br>-This result is not applicable yet for public firms since, Berkowitz & O'Brien (2001) bank's data is accessible for bank regulators. |
| (Jorion 2002a) | -Quarterly trading revenue t+1 less expected trading revenue in quart year t. | -VaR –based volatility in expected trading Revenue in t. | - 8 public banks<br><br>-OLS and SUR and Pool.<br><br>-2GLS | -Exp vol. of trading revenue positively associated with next quarter for three banks, 2 of 3 banks, the significant association is higher time-series and for the third one, as it was one of the first VaR's bank disclosers in US. | -VaR only, irrespective to other market risk exposure and formats.<br><br>-Using multi-specific econometrics models. |
| (Lim and Tan 2007a) | -Return (250 trading days. | - EPS and Change in EPS<br><br>-VaR /MV at the end of year.<br><br>-Lev, MKBK<br><br>-Persistence of fist order autocorr. of earning for 5 y., Beta. | -81- Non-financial firms.<br><br>-10-K filing data<br><br>-Topit<br><br>-240 observations. | - Higher VaR figures that disclosed by firm, has a lower earnings-returns association. | -VaR notional amount, which not considering VaR requirement and estimates which very important of investors.<br><br>- Quant. Only. |

| | | | | | |
|---|---|---|---|---|---|
| Bali and Cakici (2004) | Cost of Equity (CAPM) | -Market Risk (VaR)<br><br>-Return<br><br>-Size(MC)<br><br>-Liquidity | -Non-financial firms<br><br>-468 Monthly observations.<br><br>-Time-series regression | -VaR capable to explain the cross-sectional differences in expected return but beta is not, result is robust.<br><br>- R-square, VaR provides better figure, even after controlling market size, book-to-market and liquidity. | -VaR Only.<br><br>- Using one cost of equity model, no robust test for (CAPM). |
| Chen and Gao (2010) | -COE-Claus and Thomas(2001)<br><br>-COE- Easton (2004). | -Market risk (VaR)<br><br>-MC<br><br>-Daily retune(No. stock/outstanding) | -24 US Banks-1998-2008<br><br>-OLS | - Positive association between VaR disclosures that firm disclose for trading activities and cost of equity capital.<br><br>-Technical sophistication is strongly correlated with market capitalization. | -Banks only.<br><br>-Only VaR. |
| Gay et al. (2011) | - Three-factor model of Fama and French (1993). | -Derivatives users (Dummy Var.)<br><br>-Leverage and industry Lev.<br><br>-No. of Analysts. -No. of segment, -Quarter Return, Tax. Foreign sales/net sale, Others. | -1541 years (1992-1996) & 2489 years from 2002 to 2004.<br><br>-Multivariate tests, OLS and Probit.<br><br>-Year FE. | -They measure cost of equity capital by using Fama and French (1993) model, hence, they find firms that use derivatives reduce their cost of equity capital by 24-8 basis points compared to non-users. | -Using only Portfolio based measures for COE. Three Factor model does not consider the information components.<br><br>-Derivatives users main test, and they used the notional amount of exposures.<br><br>-Historical derivatives data, not based on future exposures.<br><br>A model based 2003-2004 has not significant intercept.<br><br>-Using accounting firm level measures only. |

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|---|---|---|---|---|---|
| Richardson (2006) | -Free Cash Flow<br><br>-I_New.<br><br>-Market Value of Equity | -Investment Efficiency Residual.<br><br>(I-Total, t = CAPEX,t +Acquisitions, t +R&D,t +Sale-PPE, t)<br><br>-(I-New, t=I-Total, t +I-Maintenance, t)<br><br>-Cash, Lev., Age, Size, Stock Return, I-New, Growth. | -58,053 firm-year observations from 1988-2002. | -Positive association between over-investment and firm's free cash flow. On average, he finds firms with free cash flow, have over-invested 20% of their cash flow and 40% of them retained their cash into cash or marketable securities. | Only for Over-investment.<br><br>-Industry and year effects.<br><br>- He used Dep. as maintenance measures, in fact he includes R & D, and hence, Dep. is a noisy measure for R& D.<br><br>- Omitted variable problems.<br><br>-No direct link to disclosures. |
| Biddle and Hilary (2006) | -Residual from (Capx,t /Capx ,t-1) =b0 + b1 * Operation cash flow, t /CAPX, t-1) + b2* Tobin Q,t (MVBV) | Disclosures quality index (CIFAR)<br><br>-Legal origin.<br><br>-Creditor and shareholder right.<br><br>-Economic conditions and judicial efficiency | -34 countries.<br><br>-OLS & 2SLS-GMM. | -They find higher accounting quality is associated with lower firms' investment cash sensitivity. They also find creditor rights and quality of disclosures play significant role between financial quality and investment efficiency. | -Only Cash flow Sen & Only Over-investment.<br><br>-Not obtain sufficient time-series from countries to estimate firm-specific measures.<br><br>-Different countries from different contents have difference laws and regulation, hence reducing result generalization, and difficult to compare among them (e.g. asset revaluation), while this study uses Homogenous countries.<br><br>- 2SLS analysis not presented.<br><br>-Only second stage test is shown.<br><br>-Do not check IVs-specification test-such as weak iv test. |

| | | | | | |
|---|---|---|---|---|---|
| Biddle et al. (2009) | -Invest. Effi. Residual =Investment (N_PPE, t –R & D, t- Sale asset, t) + b1 *Rev. Change, t | - FRQ, Analyst followers, Over-invest firm, MVBV, S.D (CFO), S.D (Sales), S.D (Investment), N_PPE & Dividend.<br><br>-Age, Operation Cycle, Losses G-scores, Cash and Other conditional variables. | -34791 Non-financial firm y observations from 1993 to 2005.<br><br>-OLS.<br><br>-Ind. FE | -High quality information reduces over-investment and under-investment.<br><br>-Result is conditional to firm that more likely to over and under invest. Hence, firm with high quality information is less influenced by macro-economic shocks compared to firm that with lower financial information quality. | - Information quality based on accrual accounting measures.<br><br>- No OLS robust<br><br>-Intercept of OLS models is omitted. |
| Chen et al. (2011a) | Investment eff. Based on (Biddle et al. 2009b)= residual = b0 + b1 Rev Growth + b2* Nag(loss) +b3* Nag * Rev. Growth. | - FRQ.<br><br>- Log Asset, Log Age, Tang, Slack, Audit, Bank, Tax. | -6321 non-financial private firms (multi-industry).<br><br>-OLS & 2SLS.<br><br>-Year FE | -Financial reporting quality negatively and significantly associated with (under- over) investment efficiency.<br><br>-More pronounced in case if the private firm looks for external finance.<br><br>-This relation is reduced when private firm face more tax pressure. | -Financial reporting quality only.<br><br>-They proxy for OCF, using net income –dep.<br><br>- 2SLS is shortly explained & Did not show their work on 2SLS & Conditional test to alleviate omitted variable tests.<br><br>-Using survey (Financial information in some means restricted for private firms. |
| Cheng et al. (2013) | - Total investment measured as the sum of research and development, capital, and acquisition expenditures less the sale of property, plant, and equipment multiplied by 100 and scaled by the lagged total assets. | -Weak & Over-Firm,<br><br>-Gov., Analyst, MVBV, Log asset, S.D(CFO), S.D (Sales), S.D(Investment) , Z-scores, Lev, Loss, Opr.cy., Ind. Lev, Age, And Others. | - 545 firms disclosed ICW.<br><br>-Pool OLS<br><br>- Year FX | -They find prior to ICW, firm over and under invest; and after disclosing ICW, investment efficiency improves. | -They used Material Internal Control mandatory disclosures to proxy financial quality reporting.<br><br>-Mandatory disclosures not related to risk |

## 5.2 Determinants of Market risk disclosures studies

*5.2.1* The second strand of disclosure studies investigates the determinants of market risk disclosures. Determinants include corporate governance[61], board of directors, firms' size, and standards compliance.[62] For instance, Eng and Mak (2003) investigate ownership structure (insiders, blockholder and government), board composition (percentage of independent director) and firm's voluntary disclosure. They find that the disclosure level increases with lower levels of insider ownership and with a higher proportion of government directors. In addition, they find more outside directors on the board reduces the disclosure level. On the contrary, Chen and Jaggi (2001), find that financial disclosure improves with a higher proportion of independent directors although this association is weaker in family controlled firms. This view is also supported by (Lim et al. 2007; Jaggi et al. 2009; Jaggi and Leung 2007; Cheng and Courtenay 2006; Chau and Gray 2010). However, the aforementioned studies have focused on firms' overall disclosure (e.g., voluntary and financial level, earning management, and segment reporting) levels and board composition (e.g., ownership representative directors and independent directors. The next section will discuss the role of corporate governance structure and its relation with market risk disclosures.

Tufano (1996) uses a sample of 48 U.S. gold mining firms to examine the cross-sectional differences in risk management activities with financial distress and risk aversion. In this paper, Tufano (1996) tests the predictive power of the theories which could explain disclosure choices of these firms. In addition, Tufano tests whether the corporate risk

[61] Corporate governance as a mechanism to control the agency cost and reducing the information asymmetry is well documented in previous literature (e.g., Armstrong et al. 2010; Beyer et al. 2010; Brickley and James 1987; Healy and Palepu 2001; Jensen 1986; Jensen and Meckling 1976; Jensen 1993; Judge et al. 2003; Weisbach 1988; Williamson 1979).

[62] Several papers discuss the corporate governance, compliance and voluntary disclosure for individual country in GCC (For instance, in K.S.A (Al-Turki 2006), in Oman (Dry 2003; Al-Yahyaee et al. 2011), in Kuwait ((Al-Shammari and Al-Sultan 2010), in Qatar (Hossain and Hammami 2009), in Bahrain (Joshi and Wakil 2004) and in UAE (Hassan 2009).

management is associated with risk aversion of managers if they hold an equity interest in the firm[63]. First, the prediction of Smith and Stulz (1985) theory: when managers own more stock of the firms, they manage less gold price risk, is consistence with Tufano's result. .

Hirtle (2007); Perignon and Smith (2010a); and Woods et al. (2008) have adopted an index of Value-at-Risk (VaR) that was initially developed by BCBS (2001) Disclosures Survey.[64]. Hirtle (2007) who uses a sample of 24 U.S. Holding Banks (141 firm year observations) from 1994 to 2004, to examine whether the forward-looking estimates of risks disclosed could act as a substitute to market discipline. She examines the impact of market risk disclosures on future risk and returns of trading and market activities[65]. Hirtle (2007) finds a negative and significant association between VaR disclosures and lower risk and high risk-adjusted returns, for trading purposes and overall for the firm. Hirtle (2007) concludes that whenever VaR disclosures increase, the U.S. Holding Banks develop better risk-returns.

Perignon and Smith (2010a) investigate two objectives, the level of VaR disclosures from 1996 (pre-FRR No. 48) to 2005 and to test the accuracy and usefulness of VaR disclosures[66]. Using a sample size of 10 U.S. banks, they find that average VaR index reports lower level of disclosures proceeding FRR No. 48 implementation, followed by a marked increase in disclosures post-FRR No. 48. After plotting the VaR index time-series for each bank, they find that the top four banks in the U.S. report higher VaR scores as compared to

[63] Based on managerial risk aversion by Smith and Stulz (1985) hypothesis and based on signalling managerial skill theory by Breeden and Viswanathan (1998) and DeMarzo and Duffie (1995), the financial distress is measured by operational costs and leverage using Smith and Stulz (1985) hypotheses by using the industry-specific measure for firms' exposures, investment programs and cost structures.

[64] However, Hirtle (2007) use five sub-categories and 18 points for VaR informativeness index, Perignon and Smith (2010a) apply six sub-categories and 15 points. Nonetheless, Woods et al. (2008) question the methodologies (in particular the indexes that applied in prior researches) as it is not only do not comprehend the market risk disclosures, but also because these indexes present only the informativeness of Value at Risk (VaR) disclosures. From the methodological prospective, this research is complementary to this strand of studies.

[65] This paper (Hirtle (2007) is a typical example from Nier and Baumann (2006), in sense they investigate the disclosed amount of information by banks and successive share price volatility. Except, they construct their index based balance sheet and income statement items, while Hirtle (2007b) develops her index based on banks that disclosed "Value-at-Risk"-VaR- in their annual reports.

[66] They construct VaR index based on 13 weighted items (16 points) with 6 sub-categories; which are 1) VaR Characteristics, 2) Summary VaR Statistics, 3) Inter-temporal Comparison, 4) Daily VaR Figures, 5) Trading Revenue and 6) Back-testing.

smaller banks[67]. To better understand the level of VaR disclosure environment, Perignon and Smith (2010a) compared the average of VaR index scores with the top six of the Canadian banks over the same period. They find that smallest U.S. and Canadian banks at the commencement of FRR No. 48 report a similar level of VaR information. However, the average Canadian VaR index was found to be much higher compared to U.S. VaR score.[68] Perignon and Smith (2010a) find limited answers to link VaR and daily trading revenues[69]. However, they find that banks that use a Historical Simulation method to calculate VaR could slightly explain or forecast future trading revenue' volatility.

Using spearman rank correlations, Woods et al. (2008) [70] fail to find any significant correlation between banks size and the level of market risk disclosures. Additionally, they find some evidence that the level of market risk disclosures increases over time from 2000 to 2006[71].

[67] Further, they find some banks do not report a basic requirement of VaR characteristics such as horizon of their estimates; in fact this is a robust result to BCBS survey's result. Forth, no banks report hypothetical trading-revenues that adjusted for bank trading fees.

[68] Range of Canadian VaR's bank score is 10, while for the US banks is 7.

[69] They apply two tests, firstly using the Berkowitz and O'Brien (2002) hypothesis that tests the year-end VaR exceptions, and they find banks that disclose exact number of exceptions increases in US banks but remain at low level compared to world' banks sample, secondly, banks still overstate VaR's figures hence, VaR's quality is violated. Then to re-check "Quality of VaR", like (Jorion 2002a), they construct daily VaR's and trading revenues, by employing date of banks that score the highest VaR index, each from different countries. In this measure Perignon and Smith (2010a) try to investigate whether the daily VaR explains the trading revenue volatility? Using different econometrics approaches (Such as GRACH Model using (Mincer and Zarnowitz 1969) and Guassian GRACH Model.

[70] This study covers the gap of the previous papers' limitations by strengthening previous studies through addressing wider range of qualitative, quantitative, tables and graphs of market risk disclosures. Secondly, rather than one single country, this study seeks to investigate top 25 international banks. Therefore, Woods et al. (2008) construct 41 items index for market risk disclosures, to answer three main questions. First, the association between market risk disclosures and bank's size. Second, the change of market risk disclosures over time. Third, the differences of disclosures practices level between institutional and international banks.

[71] However, fourth trends of market risk disclosures noticeably are obtained, 1) high level disclosures, 2) consistent average, 3) low level disclosures, and 4) strong increase disclosures. Then they compare the obtained results to the regulatory regimes. They find, some European countries have high disclosures, and some other European countries have low disclosures, secondly, North American has an increasing trend of market risk disclosures, and finally UK has a highest level of disclosures. Finally, Woods et al. (2008) find the levels of disclosures are linked to the number of annual reports pages.

Taylor et al. (2008) examine the pattern of financial instruments derivatives disclosures (FIDI)for Australian mining and petroleum firms.[72] Taylor et al. (2008) find a significant increase of disclosures over time, particularly after the adoption of IFRS. Based on pooled regression model, they find, that (+) corporate governance index (+) capital management, cross-listing and (-) income tax specifications are significantly associated with FIDI disclosures index. This result is obtained after controlling for firms' size, leverage, top 20 shareholders, sub-industry and ROA[73]. Furthermore, Taylor et al. (2008) find that each individual item of FIDI is statistically significant with the independent and control variables.

Using on multi-perspective theoretical framework[74], Haniffa and Cooke (2002) extend the human factors impact theory of corporate governance to examine the level of voluntary disclosure of Malaysian listed firms. They found that the level of voluntary disclosure is significantly negatively associated with the occurrence of family members on the board and with the existence of a non-executive chair in the board. This result is consistent even after using reduced regression variables (20 variables); except for racial ownership structure which reports positive and significant association. Myring and Shortridge (2010) investigate the importance of strong corporate governance as a mechanism to improve the quality of financial disclosures.[75] Myring and Shortridge (2010) find no evidence that the corporate governance is an important tool to strengthen the firms' quality of financial disclosure[76]. Htay et al. (2011) use a panel data of 12 listed Malaysian banks to study the association between

[72] In this study, Taylor et al. (2008) apply diffident types of theoretical frameworks (e.g. agency theory, information asymmetry theory and legitimacy theory). Using longitudinal (panel) data for four years from 2003 to 2006, and employing self-contractive financial instrument index (FIDI) that consists of 120 items (The index mainly is built from the financial instruments Australian Accounting Standards Board (e.g. AASB 1033, AASB 132, and AASB 7).

[73] All control variables are statistically significant to explain the FIDI Index.

[74] They used corporate governance and social value of different races based on (Hofstede et al. 1991), and accounting value based on (Gray 1988).

[75] They measure the quality of financial disclosures by evaluating the analysts' information that is extracted from IBES database. While, the corporate governance index is obtained from the Corporate Library, that categorizes the corporate governance into seven levels, 1) Board effectiveness, 2) Board composition, 3) CEO compensation, 4) Shareholder responsiveness, 5) Accounting, 6) Strategic decision making, 7) Litigation and regulatory problems and takeover defence

[76] This study is additional supportive evidence to Koehn and Ueng (2005) and Farber (2005).

risk management disclosure and corporate governance.[77] They find only two corporate governance variables have significant associations with the risk disclosure index:, (+) independent and non-executive and (-) director ownership.

*5.2.2 Summary of determents of market risk disclosures studies:*

Generally, studies that investigated determinates of market risk disclosures provide mixed and inconsistent results. Some of these studies, did not apply potential market risk disclosures, instead they had applied derivatives financial instruments (historical disclosures). Three papers discussed only VaR disclosures format by constructing indexes for VaR format, however, these papers had not applied that for other market risk formats[78]. Furthermore, banks and financial related industries, not examined in any of discussed papers. For example, past papers investigated the determinants of market risk disclosures only in banks or firms from mixed industries. Further, omitted variables problem is not very investigated from econometrics perspective. The discussed papers also used self-constructed indexes however; these disclosures indexes were not validated (except Taylor et al., 2008). Overall, qualitative risk disclosures were not well incorporated in some of market risk disclosures studies. Table 2.4: provides a summary of studies of the determinants of market risk disclosures:

[77] Risk management index consists of 33 variables that sub-divided into eight categories;1) Overall market risk exposures, 2) Interest rate, 3) Currency exposures risk, 4) Liquidity risk, 5) Credit risk, 6) Operational risk, 7) Derivatives, and 8) Hedging strategy. The independent variables are the corporate governance elements (leadership separation, independent directors, board size, director ownership and block ownership), plus two control firms-level characteristics which are; log of total asset (size), and leverage (total debt over total equity)

[78] Methodologically I contribute in these studies by developing Sen Index alongside with VaR index.

**Table 2.4: Summary of determinants market risk disclosures studies.**

| Authors(s) | Dependent Variables | Independent Variables | Methodologies | Main Findings | Comments/issues |
|---|---|---|---|---|---|
| Malone et al. (1993) | -Extent of Financial disclosures scaled to maximum expected score- | -Debt to total equity, No. of shareholder, Total asset, Ind. diversification, Rate of return (Net worth).<br><br>-Earning margin, Big 8 audit, Market type Listing.<br><br>- Number of<br><br>-Independent board directors. | -Annual reports<br><br>-125 oil and gas firms<br><br>-Stepwise regression model | -Only three variable retune in the model at .2 significance level which are listing status,<br><br>, ratio of debt to total equity, and number of shareholders.<br><br>- Systematic differences between firms that provide different amounts of information. | -Limited to Oil and gas firms<br><br>- No responding firms' survey and analyst biased.<br><br>- Dependent variable's index items are not disclosed.<br><br>-Self-constructed robust by Questionnaire to financial analysts.<br><br>- Quant. Only. |
| Tufano (1996) | - Leverage (Long-term debt scaled by firm size)<br><br>- Cash costs. | -Exploration activities<br><br>-Acquisition activities<br><br>- Firm size, Reserves, Tax loss carries forwards.<br><br>- Direct share ownership<br><br>- Large non-managerial blocks, Diversification, Cash balances. | - 48 US Gold mining firms.<br><br>- Pool OLS regression<br><br>Annual reports and 10Ks.) | - Firms whose managers hold more options manage less gold price risk, and firms whose managers hold more stock manage more gold price risk.<br><br>-Suggesting that managerial risk aversion may affect corporate risk management policy. | -Sample biased as they consider only firm with highly market risk for gold exposures.<br><br>- Asymmetry information is existed between management and investors which is not considered.<br><br>- Only Gold sensitivity.<br><br>- Quant. only |
| Chalmers (2001) | -Percentage of Voluntary Financial instrument disclosures- self-constricted) | | -140 Listed Australian<br><br>-Annual Report for 6 years, Means tests.<br><br>- Pre & Post Voluntary Regime. | -Voluntarily financial disclosures is on increased trend (1992 to 1998)<br><br>-Referring the increase 1) The release of ED65: (AASB 1033) & 2) After AASB 1033: Presentation and Disclosures of financial instruments, is mandated by AASB in 1997.<br><br>-Not Fully complied with ED65 (AASB 1033). | - Historical Derivatives financial instrument disclosures only.<br><br>-Not considering any market risk exposure, reporting effects & formats.<br><br>- Considering only one year after the mandatory regime (1998). |

| | | | | | |
|---|---|---|---|---|---|
| Chalmers and Godfrey (2004) | -Voluntary financial instruments(14 items self-constructed index) | -Size, Industry classification, Leverage, News, New issue shares, Inde. BOD, Top 20 & Audit big 6. | -199 listed Australian Firms<br><br>-Annual Reports01992-1996<br><br>-Per & Post ED59: Financial Instrument.<br><br>-OLS regression | - Extent of Vol.-Disc. Significant for all reporting years.<br><br>- Extent of Vol.-Disclosures after Mandatory Regime.<br><br>-Asset and Industry classification significant positive association all years & Lev Negative significant.<br><br>- Positive significant with issuing new share. | - Historical Derivatives financial instrument disclosures only.<br><br>-Legitimacy theory<br><br>-Not considering market risk disclosures.<br><br>-Not Year FE for time-series effects.<br><br>-Not robust by any Panel data effects or by other econometrics models to overcome the estimator consistency problem of OLS. |
| Mallin et al. (2004) | -Voluntary financial derivatives disclosures. | | -Semi-structured Interview<br><br>-14 fund management firms. | - Disclosing derivatives exposures before FRS13, stemmed from management attitudes for transparency & industry pressure after big earlier scandals, motivated towards new move to management risk, huge size of derivatives risk, | - Derivatives financial instrument includes market risk exposure, but disclosures of derivatives disclosures is historical exposures not represents the actual market risk based on potential risk. |
| Hirtle (2007) | -Market risk VaR disclosures index (by BCBS Disclosures Survey 2001).<br><br>-Performance: 1) Trading Revenue; 2) Trading volatility; =Trading Return. | -Log (assets), Log (assets) sqr, Risk-weighted Assets/assets, Total Risk-Based Capital Ratio, Trading Assets/Assets, Deposits/Assets, Loans/Asset, Securitizes/Asset, Fed Funds/Assets and Others. | -24- US holding banks<br><br>-141 observations from 1994-2004.<br><br>-OLS | - Neg. and significant association between VaR disclosures index, the lower risk and high risk- adjusted return, generally for trading and overall firm.<br><br>-"*This finding suggests that there may be learning cost for investors in assessing and putting into context new types of information about risk*" (p 25). | -Index of VaR, considering the requirement of VaR, irrespective to type of market exposure, and reporting effects.<br><br>- Sample selection bias as from 1994-2004, she select only firms that disclose VaR.<br><br>-Variables biased to Banks sectors only.<br><br>-Not considering any effects and time-series effects, during 10 years. |
| Perignon and Smith (2010a) | -Returns | Adopted Market risk VaR disclosures index (by BCBS Disclosures Survey 2001). | -10 US banks.<br><br>-GARCH Model lead -regression. | -VaR score higher Post to FRR No. 49-1997.<br><br>- Top 4 banks in US report higher scores compared to middle and lower banks size.<br><br>- Some banks do not report a basic requirement of VaR characteristics. | - VaR only.<br><br>-Testing the quality of VaR based on end-year compared to back-test, using sample observations 5 Canadian Banks and 21 International banks. |

| | | | | | |
|---|---|---|---|---|---|
| | | | | -Non-controlling for the competitive characteristics in both countries, the average Canadian VaR index much higher compared to US VaR score.<br><br>-Find limited answers to link VaR and daily trading revenues. | |
| Woods et al. (2008) | -Extent of MR disclosures. | - Size | -25 International banks (2000, 2003 and 2006).<br><br>-No regression. | - No any significant relationship between bank's size (measure on market capitalization) over three years (2003, 2000 and 2006).<br><br>- Weak evidence that market risk index increases over time from 2003 0 to 2006.<br><br>-Some European countries have high disclosures, and some other European countries have low disclosures, secondly, North American has an increasing trend of market risk disclosures, and finally UK has a highest level of disclosures.<br><br>-The levels of disclosures are linked to the number of annual reports pages. | -Overcome to previous 2 papers that only consider VaR, this paper incorpllllorates more qualitative and quantitative items, however, but from 41 items, 23 items are related to VaR, no disclosures items for Sen format. Hence; generalizability of firm's market risk disclosures is flawed. They also, include the reporting effects (e.g. cash) also, market risk exposures (e.g. IR). |
| Taylor et al. (2008) | -Financial instruments market risk disclosures. | -Corporate Governance.<br><br>-Capital Management.<br><br>-Cross-listing, Income Tax<br><br>-Firm size, Leverage, Top20<br><br>-Sub-Ind., ROA. | -122 Australian Mining firms, annual reports from 2003-2006.<br><br>-Pooled OLS. | -Sig increase of disclosures over four years (Post-IFRS).<br><br>-Sig positive association between DV and CG, Cross-listing & Tax.<br><br>-Sig Neg. with Capital Management (CoE). | -Using Der. Instruments, which based on Historical exposure?<br><br>-Targeting Mining industry, which more likely to expose commodity risk (e.g. O&G prices, gold...).<br><br>-No omitted variable specifications. |
| Haniffa and Cooke (2002) | -Voluntary Disclosures including Financial information. | - CGs<br><br>-Cultural Variables (e.g. finance directors, | - 167 Malaysian Annual Reports, 1995. | -Using full variables regression, the voluntary disclosures is only has a significant relationship with (-) family members of the board and (-) when | -No direct reference to market risk.<br><br>- Includes unique cultural variable that reflect unique cultural characteristics, which could be applied only in |

| | | | | | |
|---|---|---|---|---|---|
| | | qualification…)<br><br>-Firms level (e.g. size, gearing, To 10, ROE... | -OLS | chair is not executive member | Malaysia.<br><br>-No robust evidence reported. |
| Myring and Shortridge (2010) | Quality of Financial Disclosures. Measured consensus and uncertainty can be measured in terms of three forecast properties: expected dispersion, expected squared error in the mean forecast, and the number of analysts issuing forecasts, N. | -CGs from Corporate Library, No. Analysts, S.D EPS last 3 ys, Abs change in Earnings, MK, MKBK & Director ownership. | -1150 observations, IBES.<br><br>-Ranked Regression. | -No evidence that the corporate governance is an important tool to strengthen the firms' quality of financial disclosures. | - Measuring Quality of Financial disclosures, based on Analyst forecast (biased).<br><br>-Appling Corporate Library index for corporate governance as independent variable. This index stemmed from the problems of 2002 collapses (e.g. Enron). |
| Htay et al. (2011) | -Management risk reporting. | -Corporate governance.<br><br>-Size(log asset)<br><br>-Leverage | -12 Malaysian local listed firms.<br><br>-OLS | -Independent and non-executive directors' variable is positively influence on the risk management disclosures. - Director ownership is negatively associated with the risk disclosures index. | -Selection of only local banks.<br><br>-Focused only on market risk exposures (IR, FX...)<br><br>-Including qualitative items. |

## 6. SUMMARY OF CHAPTER 2

Prior studies investigated the informativeness of market risk disclosures by examining the effects pre- and post- market risk mandatory regulation internationally and in U.S. (e.g., *FRR No. 48*). Studies that examined market risk disclosures before the release of regulation (e.g. *Pre-FRR No. 48*) used firms belonging to the oil, gas and related industries, however, noticeable *post-FRR No. 48* studies shifted to non-financial firms and banks. Financial firms incorporating commercial, investment, and retail, wholesale and insurance firms are not part of prior studies. Further, although the link between overall risk disclosures, transparency and corporate governance mechanisms were established, the association between the quality and quantity of market risk disclosures and corporate governance had not been addressed. In addition, investment efficiency studies also focused on the quality of financial reporting, while the quality and extent of risk information was not considered. In this study, the investment efficiency will be addressed from the discretion in mandatory market risk disclosures in GCC frontier markets.

Prior studies have found a negative association between extent of disclosures and cost of equity capital (e.g., Botosan 1997; Botosan 2002, 2005; Botosan et al. 2011; Botosan 2000; Cheng et al. 2013; Diamond and Verrecchia 1991; Easley and O'hara 2004; Francis et al. 2005; Hughes et al. 2009; Lambert et al. 2012; Sengupta 1998). Luez and Verrechhia (2000), notice that firms increase their disclosure level by adopting IAS/IFRS which in turn leads to a reduction in the cost of equity capital[79]. Li (2010) use 6456 firm-year observations comprising 1084 European firms from 1995 to 2006. On average, Li (2010) finds that the mandatory IFRS reduces the cost of equity capital[80]. This study examines the disaggregation

[79] Leuz and Verrecchia (2000) use proxies for information asymmetry of the cost of capital which are bid-ask spread, Trading Volume, Share Price Volatility. However, Building on same assumption of Germany firms from 1993 to 2002, (Daske 2006), fail to find similar result.
[80] Li (2010) justifies this result, to the strength of legal enforcement for each country.

in mandatory market risk disclosures and its impacts on the cost of equity capital. Furthermore, very few studies investigate the cost of equity capital in frontier markets (e.g. GCC) and emerging markets, particularly using forecast and growth models, due to the weaker disclosure regime and less analyst followers in these markets. This study also adopts different measures for the cost of equity capital (e.g. abnormal growth models, analyst forecast models, and realized return models).

## 7. CONCLUSION

In this chapter, I discuss development of the GCC stock market, financial reporting and governance framework, market risk, conceptual and background, and theoretical framework for this study through the mandatory and voluntary disclosures setting. This chapter also discusses the previous literature, the consequences and economic determinants of market risk disclosures, supplemented by table of summary for the studies in each section. Finally, I provide a general summary of the literature.

# CHAPTER 3

## DATA SOURCES AND SAMPLE DESIGN

### 1. INTRODUCTION

This study uses a unique hand-collected dataset. The empirical analysis covers the period from 2007 through 2011. The number of listed firms on exchanges in the GCC increased from 399 in 2006 to 702 after 2007. Further, based on hand collected data, I develop a market risk disclosure index using disclosure requirements in IFRS 7: *Financial Instruments: Disclosures*. In addition, firm-specific corporate governance variables were obtained largely from 2007, as many financial firms start disclosing corporate governance from 2007. All countries require consideration of corporate governance after 2006 (except Oman when governance rules were introduced in 2003).

The sample consists of the financial firms listed on the GCC stock exchanges. The financial firms comprise banks, insurance, financial and investment firms. There are several reasons why financial firms are used. The financial sector is one of the few sectors in the GCC that was allowed by the various GCC governments' to engage in full competition (Hertog 2012). Prior studies on financial firms and market risk reporting show that the financial firms disclose comprehensive risk information relative to that of other industries (Nier and Baumann 2006; Perignon and Smith 2010a). Further, as suggested by Linsley and Shrives (2006), disclosure by financial firms should be understood and investigated separately to whom that of non-financial as financial firms are highly risk oriented institutions. There are far less studies on corporate governance, investment efficiency and the implied cost of equity capital from financial firms.

## 2. DATA SOURCE

The sample was formed by utilizing a variety of databases and resources. The databases used for forming the sample are as follows:

*Standard & Poor's Capital IQ (S & P Capital IQ):*

S&P Capital IQ has grown very rapidly to become one of the leading providers of software, data and analytics to the financial services community. Initially I used Capital IQ to list and select the number of active listed firms in the GCC stock markets. All control variables and firms' annual reports are obtained from the Capital IQ.

*Annual Reports:*

The market risk disclosures index and corporate governance index are unique. No databases provide variables on disclosures and corporate governance for the GCC firms. This study constructs market risk disclosures index and corporate governance index based on information provided in the annual reports (see *Appendix A & B* for market risk disclosures index and corporate governance index). To collect the annual reports, I match the financial firms that I obtained from Capital IQ. Annual reports are collected from companies' web-site, the GCC stock markets database, and Capital IQ filings.

*Institutional Brokers' Estimate System (I/B/E/S)*

I/B/E/S collects earnings estimates for U.S. and international companies. The dataset subsequently was used as the basis for academic accounting/finance journals for earning forecast, earning precision, consensus, and cost of capital. I used IBES for the third objective to estimate the additional test of ICOE.

*Country Governance and Investor Protection*

I also used Kaufmann et al. (2009) country governance index and La Porta et al. (2000) investor protection index to control for country-specific factors. I obtain these indexes from the World Bank database.

*Stock price and Beta*

Stock closing prices and firm's 12 months beta were obtained from Bloomberg database.

## 3. SAMPLE SELECTION

I sort all active listed firms in the GCC stock markets. I find 629 active listed firms; excluding 421 non-financial firms, with a final list of 276 financial firms. I exclude firms that categorized under financial firms based the S&P capital IQ, but not classified as financial firms in the stock markets such as commodity contract pool operators, commodity contract trading companies, commodity contract brokers and dealers, and oil and gas lease brokers. This procedure yields 208 (1375 observations) financial firms. Then I also exclude joint listed firms and financial firms that do not have an accessible annual report, those have only have financial statements, and those missing a corporate governance section, and risk reporting section in their annual reports. The final sample is 141 (705 year observations) financial firms. However, for each objective, the final sample varies depending on the control variables and type of regression models used in the analysis. Table 3.1 and 3.2 show the sample distribution based on country and industry in each year. Table 3.1 exhibits that U.A.E represents highest number of observation (170), followed by Kuwait (Oman) with 150 (125). Finally, Table 3.2 shows that my sample comprises four industries, namely Banks (300), financial firms (180), insurance (140) and investment (85).

**Table 3.1 Sample Distribution based on Country and Year**

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | Total |
|---|---|---|---|---|---|---|
| Bahrain | 17 | 17 | 17 | 17 | 17 | 85 |
| K.S.A | 18 | 18 | 18 | 18 | 18 | 90 |
| Kuwait | 30 | 30 | 30 | 30 | 30 | 150 |
| Oman | 25 | 25 | 25 | 25 | 25 | 125 |
| Qatar | 17 | 17 | 17 | 17 | 17 | 85 |
| U.A.E | 34 | 34 | 34 | 34 | 34 | 170 |
| Total | 141 | 141 | 141 | 141 | 141 | 705 |

**Table 3.2: Sample Distribution based on Industry**

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | Total |
|---|---|---|---|---|---|---|
| Banks | 60 | 60 | 60 | 60 | 60 | 300 |
| Financial | 36 | 36 | 36 | 36 | 36 | 180 |
| Insurance | 28 | 28 | 28 | 28 | 28 | 140 |
| Investment | 17 | 17 | 17 | 17 | 17 | 85 |
| Total | 141 | 141 | 141 | 141 | 141 | 705 |

Table 3.3 shows that initially the sample comprises 1,375 firm-year financial firm observations. Exclusion of joint listed firms (15 firm years), firms with no annual reports (670 firm years), and firms with missing values relating to the control variables (13 firm-years) yields a final sample size of 677 firm-year observations for the first objective 1 "*Market risk disclosures, corporate's life cycle and board risk committee"*.

**Table 3.3 Sample Selection "Objective 1"**

| | |
|---|---|
| Number of observation available for financial firms in S & P Capital IQ for the GCC countries from 2007 to 2011 | 1,375 |
| Less: | |
| Joint listed firms | (15) |
| Firms with unavailable annual report for disclosure items | (670) |
| Firms with missing values in control variables | (13) |
| **Total firm year observations** | **677** |

In the second objective "*Discretion in Mandatory Risk Disclosures and Investment Efficiency*", I utilise a lagged regression model to test whether the current year "investment" is influenced by the previous years "discretion in mandatory market risk disclosures". This procedure omits one firm year observations. Table 3.4 shows the final sample size for the

second “objective 2” as follows; for model 1, the final sample is 550, for model 2 the final sample is 557 and for model 3, the final sample is 547.

**Table 3.4 Sample Selection “Objective 2”**

| | | |
|---|---|---|
| Number of observation available for financial firms in S & P Capital IQ for the GCC countries from 2007 to 2011 | | 1,375 |
| Less: | | |
| Joint listed firms | | (15) |
| Firms with unavailable annual report for disclosure items | | (670) |
| Firms with missing values in control variables | | (13) |
| Firms dropped due to Lagged regression- Model1 | a.(127) | |
| Firms dropped due to Lagged regression- Model2 | b.(120) | |
| Firms dropped due to Lagged regression- Model3 | c.(130) | |
| **Total firm year observations** | | a.550, b.557& c.547 |

For the third objective - *Disaggregation in Market Risk Disclosures, Auditor Conservative and the Implied Cost of Capital*” I use the same procedure for sample selection used in first objective. However, I follow Easton (2006); Daske (2006); Chen et al. (2010); and Dickinson and Sommers (2012) to measure the ICOE using a portfolio (Easton and Sommers 2007) measure including firm-specific variables. Easton (2006) and Daske (2006) suggest the inclusion of a firm risk control variable in the portfolio-based measure; therefore, I use a constant sample size where a firm. Using this procedure I obtain a final constant sample size of 588 firm-year observations. Table 3.5 presents the distribution of 588 firm-year observations of the final sample based on country and year. The UAE represents 24% of the sample, followed by Kuwait (Oman) with 17% (18%), respectively, of the total observations. In addition, the highest number of firm-year observations, derived from 122 annual reports, occurs in 2009.

**Table 3.5 Sample distribution based on country and year “Objective 3”**

| **Year** | **2007** | **2008** | **2009** | **2010** | **2011** | **Total** |
|---|---|---|---|---|---|---|
| **Bahrain** | 15 | 16 | 17 | 17 | 16 | 81 |
| **Saudi Arabia** | 15 | 16 | 15 | 15 | 14 | 75 |
| **Kuwait** | 21 | 21 | 23 | 22 | 20 | 107 |
| **Oman** | 20 | 20 | 22 | 17 | 21 | 100 |
| **Qatar** | 14 | 17 | 17 | 17 | 17 | 82 |
| **U.A.E** | 29 | 29 | 28 | 30 | 27 | 143 |
| **Total** | **114** | **119** | **122** | **118** | **115** | **588** |

## 4. CHAPTER SUMMARY

In this chapter, I discuss the data sources that used to collect and filter my sample. Also this chapter presents the data period and sample distribution in each country, industry and year. In addition, this chapter shows the sample criteria, and sample selection relating to each objective.

# CHAPTER 4

# MARKET RISK DISCLOSURES, CORPORATE'S LIFE CYCLE AND BOARD RISK COMMITTEE

## 1. INTRODUCTION

Numerous studies (e.g., Jorion 2002a; Linsmeier et al. 2002; Rajgopal 1999) and professional surveys (e.g., CFA institution, 2012; (Basel Committee on Banking Supervision BCBS 2002, 2003) have articulated the usefulness of information content of market risk disclosures. These studies and surveys show that market risk disclosures help investors understand the risks associated with on- and off-balance sheet items, and forecast financial statement and cash flow effects when key inputs such as interest rates, prices and exchange rates change between reporting periods. Market risk disclosures thus improve transparency regarding risk exposures (Rajgopal 1999), increase investor confidence in financial statements (Dobler 2008), reduce mispricing of risk and misallocation of capital (Jorgensen and Kirschenheiter 2003), and assist with market discipline on a timely basis (Jorion 2002a). Prior studies (e.g., Dobler, 2008; Subramaniam, McManus & Zhang, 2009) also indicate that the existence of a risk management committee can ensure credible communication and effective oversight on organisational risk management strategies, policies and processes. However, the majority of these studies and surveys are conducted in the U.S. One logical question is whether the findings relating to market risk disclosures are peculiar to the U.S. or whether they can be extrapolated to developing markets, or if they are also prominent in countries where the disclosure regime and/or institutional and economic characteristics are significantly different.

The purpose of this paper is to investigate the impact of risk committee (hereafter RC) concentration and specialization, and the firm life cycle stages in affecting market risk disclosures in the Gulf Cooperation Council (GCC) region. In particular, I test whether the RC existence has any impact on the extent and quality of market risk disclosures. I also

examine the relevance and significance of RC characteristics in explaining the market risk disclosures level. Furthermore, I study whether the role of the RC in affecting market risk disclosures varies with different stages in the firm life cycle.

Several important economic and institutional features make the GCC a unique and interesting environment for examining the impact of a standalone RC, characteristics of RC and firm life cycle in relation to market risk disclosures. First**,** the GCC countries are characterized by limited disclosure and transparency, resulting from weak corporate disclosure requirements (Islam 2003). Although all GCC countries adopted IAS/IFRS, listed firms are largely reluctant to comply with risk disclosure requirements (Al-Shammari et al. 2008). Prior studies (e.g., Kamla and Roberts 2010) also document that firms in the GCC publish less information about their operations and risk exposures. An IFC/Hawkamah (2008) survey finds that only 9.1 percent listed banks and 26 percent non-bank firms in the GCC disclose material foreseeable risk factors. The GCC is also characterized by a scarcity of professional financial analysts and management forecasts (Al-Yahyaee et al. 2011). Furthermore, the GCC lacks credible media to disseminate financial information, which in most developed countries is provided by a specialized part of the press and electronic media. Thus, investors in the GCC have very limited sources of information, making annual reports as the most important source of information on market risk exposures. The aforementioned factors suggest that establishment of qualified RC can be used as a channel to promote disclosure of risk information.

Second, most firms in the GCC are owned by a small number of investors who have controlling interests (Al-Yahyaee et al. 2011). The National Investor-TNI (2008) survey reveals that the top five families in Dubai control between 10 percent and one third of all board seats while the top fifteen families control between 18 and 50 percent. This survey also reports that royal family directors represent 60 percent of the GCC equity capitalization.

Thus, a relatively small and tightly knit economic elite effectively control the financial markets in the GCC which can result in a power imbalance and a greater level of information asymmetry (Al-Sehali and Spear 2004; Mazaheri 2013).

Third**,** risk disclosure requirements are not well covered in the GCC code of corporate governance (Hawkamah 2010). In the KSA and UAE, the corporate governance code is largely devoid of any requirements to disclose risk information. The IFC/Hawkamah (2008) survey documents that 76 percent of GCC banks and 69 percent of non-banking listed firms do not consider disclosure as an effective tool to maintain shareholders value. The lack of public dissemination of financial information and the family controlled nature of businesses in the GCC provides us with a unique opportunity to test the role of a standalone RC in enhancing market risk disclosures. If I find that market risk disclosures correspond to the existence of a separate RC, then this will shed light on their ability in enhancing risk disclosure in emerging markets, and these findings could be particularly useful to investors, regulators, and policy makers in the GCC and other emerging markets in terms of understanding the contributing factors of market risk disclosures.

Whether or not a separate RC can improve the extent and quality of risk disclosures in the GCC is an empirical question. Studies (e.g., Brown et al. 2009) in developed markets suggest that a traditional audit committee (hereafter AC) is insufficient for overseeing financial and non-financial risks when faced with complex and high-risk environments. Since an RC concentrates on and specializes in risk monitoring and risk management, it strengthens a firm's risk management system which eventually leads to an improvement in the firm's risk reporting facets (Dobler 2008; Subramaniam et al. 2009). However, the picture is less clear in the GCC region. On the one hand, the lack of disclosure, professional analysts, reliable media, existence of concentrated ownership; and weaker corporate governance rules regarding risk disclosure suggest that a dedicated RC may have little impact on market risk

disclosures in the GCC. On the other hand, the voluntary formation of risk committee reflects firms' willingness to improve risk management and risk related disclosures and thus, a standalone RC may still be an important channel to enhance disclosure of risk related information.

## 2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

### 2.1 Risk Committee (RC)

In the aftermath of the global financial crisis, corporations (primarily in the financial services sector) focused on the formation of separate RCs to cope with risk-related issues. In many companies, the responsibility of risk oversight rests with the AC, considering that AC members have financial expertise to deal with the risk management process. However, given the complexity of the numerous risks faced by modern organizations and the overwhelming responsibility of the AC in the financial reporting process, the AC might not have sufficient time, skills, and support to assess the firm's overall risks (Field et al. 2013). The stand-alone RC is more apparent in the financial sector due to this sector's greater exposure to different types of risk (e.g., credit, market, trading, capital adequacy, regulatory, and compliance risk) (Andres and Vallelado 2008).

The determinants and consequences of the RC are under-researched. In the only study on the determinants of the RC, Subramaniam et al. (2009) document that the RC tends to exist in companies with an independent board chairman and larger boards. Obviously, the RC benefits firms by improving the board oversight of risk management and by anticipating and reacting to events and trends that might otherwise be inscrutable. Furthermore, a stand-alone RC is more capable of devoting more time and effort towards integrating and managing various organization-wide risks (Brown et al. 2009).

## 2.2 Market Risk Disclosures

IFRS 7 defines market risk as the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk is comprised of three types of risks associated with market prices: currency risk, interest rate risk, equity and other (e.g. commodity) price risk. Risk-related disclosure allows outsiders to monitor the performance of senior managers (Eng and Mak 2003) and to assess the future economic performance of the firm (Hodder et al. 2006; Schrand and Elliott 1998). Disclosure of risk-related information improves risk management and governance, a disciplining effect (Jorion 2002a) and reduces information asymmetry and cost of capital (Easley and O'hara 2004; Solomon et al. 2000). Risk-related disclosure is in line with the firm's commitment to legitimacy and reputation; thus, it improves the trust of various stakeholders.

Market risk disclosures are of immense importance for firms operating in the financial sector. Risk disclosure in banks is viewed as an effective tool for avoiding banking crises. Linsmeier et al. (2002) find that market risk disclosures reduce investors' uncertainty and diversity of opinion arising from changes in interest rates, foreign exchange rates, and commodity prices. Jorion (2002) and Lim and Tan (2007) document that value-at-risk (VaR) disclosures are informative as these can predict the variability of trading revenues.

## 2.3 Connection between the Risk Committee (RC) and Market Risk Disclosures

Theoretical perspectives may provide greater insights into managerial motivation for disclosure and hence, I resort to a number of theories (e.g., legitimacy theory, stakeholder theory and resource-based theory) to explain the formation of a RC and its relation with market risk disclosures. Extensive research suggests legitimacy theory is a major driver of corporate disclosure (Neu et al. 1998; Cho et al. 2015). According to this theory, financial institutions may disclose market risk information in an attempt to satisfy external pressures to

conform to socially acceptable norms. Market risk disclosures may also be viewed from the context of stakeholder theory (Freeman 1984). This theory stipulates that corporation seeks to provide a balance between the interests of various stakeholders to ensure that each interest constituency receives some degree of satisfaction. According to this theory, financial institutions may form a RC to safeguard its stakeholders' interest, which in turn can enhance the disclosure of risk information to more effectively interact and better communicate with a diverse set of stakeholders (Barakat and Hussainey 2013). The formation of RC may be examined from resource-based view which posits that the existence and application of resources generate the basis of competitive advantage and heterogeneity in organisational capabilities. This view suggests that firm with more resource may have the required capacity to form a separate RC to enhance the risk management process (Dobler 2008).

Over the past decade, there has been a growing emphasis from regulators, policy makers, and other stakeholders on better governance, management, and reporting of financial and business risk (Brown et al. 2009). To satisfy this demand, firms, especially in the financial sectors, are resorting to the formation of a separate RC, which can effectively manage organizational risk and improve risk reporting. The RC can improve the extent and quality of market risk disclosures in two ways. First, as risk monitoring and risk management are the sources of information for risk reporting (Solomon et al. 2000), the possible information content of risk reports is linked to the information endowed by corporate risk management (Dobler 2008). Second, it is argued that a stand-alone RC allows committee members to concentrate on corporate risk processes only and, therefore, provides better quality risk monitoring, management, and reporting than that provided by a combined audit and risk committee. A combined committee would not only have to oversee the risk management function but would need to be actively involved with the financial reporting and related audit oversight function. As the RC is primarily responsible for risk management and

risk reporting, I posit that firms with a separate RC are associated with greater extent and higher quality of market risk disclosures than firms without a separate RC. Hence I hypothesize that:

*Hypothesis 1a. The extent of market risk disclosures is greater for firms with a stand-alone RC.*

*Hypothesis 1b. The quality of market risk disclosures is higher for firms with a stand-alone RC.*

### 2.4 Risk Committee (RC) Characteristics and Market Risk Disclosures

In this section, I focus on the individual characteristics of the RC that can potentially enhance market risk disclosures.

#### 2.4.1 Independence of Members of Risk Committee (RC) and Market Risk Disclosures

Independent directors are viewed as a potential solution to many of the corporate governance problems (Wan-Hussin 2009). Agency and stakeholder theories suggest that independent directors can make impartial judgments in corporate decision making, increase the monitoring of manager's behaviour and thus can enhance stakeholders' interests (e.g., Rosenstein and Wyatt 1990). However, empirical evidence regarding the impact of independent directors on corporate disclosure and transparency is inconclusive. For example, Cheng and Courtenay (2006) and Wan-Hussin (2009) document a positive association between board independence and financial disclosures. Carcello and Neal (2003) find that independent directors in an AC improve the disclosures of financially distress firms. Thus, these empirical findings suggest that independent directors in a RC are likely to devote more effort to improve the quality of monitoring and management of risk, which eventually improves risk reporting.

Other studies, on the contrary, show that independent directors may not have the same effect on disclosure of risk information as insiders do. For example, Eng and Mak (2003)

find that the independent (outside) directors are negatively associated with the extent of voluntary disclosure. Resource-dependence theorists also posit that if a firm board comprises only of independent directors, this can harm the performance of the firm. Furthermore, Ho and Shun Wong (2001) and Haniffa and Cooke (2002) find no association between the disclosure level and existence of independent directors.

*Hypothesis 2a1. There is a positive association between independence of a majority of members in the RC and extent of market risk disclosures.*

*Hypothesis 2a2. There is a positive association between independence of a majority of members in the RC and quality of market risk disclosures.*

### 2.4.2 Qualifications of Members of Risk Committee (RC) and Market Risk Disclosures

The nature of market risk exposures requires directors with relevant qualifications and experience to ensure that risks are understood and accounted for by the firm. For example, a tabular disclosure format of risk information requires no loss outcomes to be specified, while both Value-at-Risk (VaR) and Sensitivity Analysis (Sen) requires a single point estimate of risk (Hodder et al. 2001b). In addition, both VaR and Sen can be disclosed as an aggregate measure. Such aggregate disclosure can obscure important information about the component risks, which may lead an investor to react in a different way than if component risks are detailed (Hodder et al. 2001a). A financially literate or experienced RC member is expected to observe the disadvantages of such disclosure and take a prudent approach to ensure that further detail of risk information is provided. One may argue that the RC consists of board members with professional qualifications or expertise chosen by the overall board or nomination committee. However, the GCC board directors institue BDI (2011) documents shortages of qualified and financial skilled directors, which could be one of the main barriers to board effectiveness of firms in the GCC. Moreover, corporate governance codes in the GCC do not require directors of RCs to have academic and/or professional qualifications.

Resource-dependence theory suggests that boards with qualified members can help connect a firm to its external environment and obtain valuable resources (Pfeffer and Salancik 1978). Moreover, agency theory indicates that qualified boards improve managerial monitoring (Cabedo and Tirado 2004) and thus enhance stakeholders' interests. In support of these theories, prior studies (e.g., Lee and Stone 1997) suggest that the directors of board sub-committees should have relevant experience and qualifications to carry out the monitoring functions in efficient way. DeZoort and Salterio (2001) find that a financial literate director with audit knowledge in an AC is more likely to make expert judgments than those without such knowledge. Agrawal and Chadha (2005) and Dhaliwal et al. (2010) also argue that directors with financial expertise can exercise more effective monitoring in the financial disclosure process. Consistent with these findings, I also posit that if RC members are well qualified, they can improve the RC's ability to ensure high-quality risk management and risk reporting. Thus, I hypothesise that:

*Hypothesis2b1. The extent of market risk disclosures is higher if an RC consists of at least one member with an academic and/or professional qualification.*

*Hypothesis2b2. The quality of market risk disclosures is higher if an RC consists of at least one member with an academic and/or professional qualification*

**2.4.3 Size of Risk Committee (RC) and Market Risk Disclosures**

Studies in corporate governance (e.g., Abbott et al. 2004; Bedard et al. 2004) present inconclusive evidence regarding the impact of board size on corporate financial outcomes (e.g., transparency). One school of thought (e.g., Jensen 1993; Yermack 1996) argues that a large board may lack group cohesiveness, which gives rise to communication, and coordination difficulties, and may impede the well-functioning of the firm. For example, Beasley (1996) finds that fraudulent financial reporting increases with larger boards. On the other hand, Cheng and Courtenay (2006) and Abbott et al. (2004) document an insignificant association between board size and the extent of voluntary disclosure.

Consistent with a resource-based view, another school of thought suggests that a large board can enhance firm transparency as it can provide more resources, knowledge, skills, enhance external links, and bring highly qualified counsel (e.g., Beasley and Salterio 2001; Haniffa and Cooke 2002). Moreover, agency theory also indicates that increased managerial monitoring is associated with larger boards, which may positively influence corporate disclosures, including corporate risk disclosure (Ntim et al. 2013). Felo et al. (2003) report a positive relation between board sub-committee size (audit committee) and financial reporting quality. Therefore, a larger RC is likely to offer greater information sharing and provide a set of necessary skills to coordinate and address risk management and risk reporting.

Thus, since there are two conflicting views regarding the impact of committee size on corporate disclosure and transparency, I hypothesize that:

*Hypothesis 2c1. There is positive association between RC size and extent of market risk disclosures.*

*Hypothesis 2c2. There is positive association between RC size and quality of market risk disclosures.*

## 2.5 Connection of Risk Committee (RC) and Firm Life Cycle with Market Risk Disclosures (EMRD and QMRD)

Prior studies (e.g., Liu et al. 2004; Miihkinen 2012; Solomon et al. 2000) provide evidence that the key factors affecting the level of risk disclosure is firm size [81] and not firm risk level. A number of possible reasons have been advanced in the literature in support the expectation that the extent and quality of disclosure is positively associated with the firm maturity life cycle stage and size. Corporate life cycle is tested between mature, young (or growth) and old stages. Extant literature distinguishes life cycle between pioneering, growth, mature, and decline stages of the company (Wokukwu 2000), while

[81] Till today, no study explicitly examines the association between disclosure and firm life cycle. However, Owen and Yawson (2010) show that firm maturity is positively correlated with firm size. In a recent study, Hasan et al., (2013) show that firm size in positively (negatively) associated with mature and growth (introduction and decline) stages.

Miller and Friesen (1984) categorized company life cycle into birth, growth, maturity, revival and decline stages. Pfeffer and Salancik (1978) suggest that the firm relies on a finite set of important resources for its survival and growth, and that it competes with other firms to benefit from and control these resources. According to this view, the resource base and capabilities of mature firms are large, diverse, and rich, while those of young firms and firms in the decline stage are small, concentrated, and limited. As a result, I argue that mature firms can use their resources to establish a separate RC, which they can utilize as a mechanism to attract cheaper capital (Mallin 2002), widen their customer base, and maintain their reputation (Linsley and Shrives 2006). Prior studies (e.g., Stigler 1961) also suggest that economies of scale in the production and storage of information allow larger firms to allocate relatively greater amount of resources to the production and dissemination of information. Buzby (1975) argues that disclosure puts small companies at a competitive disadvantage compared to their large counterparts. Singhvi and Desai (1971) suggest that a smaller firm is more likely to perceive that greater disclosure would be detrimental to its competitiveness. Thus, since gathering, generating, and disseminating of information are costly activities, small companies may not be able to afford such costs and therefore, a RC in young and small companies is less likely to be able to function in its capacity to disclose market risk information than in mature and larger counterparts.

Agency theory suggests that the demand for transparency by outsiders increases as the firm moves to a mature stage in its life cycle. Bulan and Subramanian (2009) posit that the agency problem is either absent or not significant in the initial stage of a firm's life cycle. In the similar vein, Jensen (1986) notes that the shareholder-manager conflict is particularly severe in firms with large free cash flows, as managers may be tempted to use free cash flow for excessive perks and benefits. Prior studies also suggest that mature firms usually attracts a broader range of stakeholders (e.g., suppliers, customers, analysts and regulators) since these

firms produce and distribute a greater proportion of goods and services, employ large numbers, consume a larger quantity of raw materials, and pay the largest portion of taxes to the government (Wallace and Naser 1996). Lang and Lundholm (1993, p: 251) note that, "information provided by and about firms is increasing in firm size". They suggest that large firms have more analyst followings and therefore are subjected to greater demand for information. Furthermore, Jensen and Meckling (1976), and Watts and Zimmerman (1990) argue that large firms are generally exposed to risk arising from societal demands for more disclosure and exercise of socially responsible behaviour, which may prompt RC in large firms to disclose more comprehensively. Therefore, the RC in mature firms, in response to increased public demand for transparency, may provide a better monitoring role in the risk management and reporting process, which eventually improve market risk disclosures.

Empirical evidence documents a positive relationship between firm size and disclosure (e.g., Cerf 1961; Firth 1979; Inchausti 1997; Lang and Lundholm 1993; Singhvi and Desai 1971). For example, Cooke (1991) finds that firm size is an important factor in explaining variability in the extent of corporate voluntary disclosure. Choi (1973) provides evidence that the extent of disclosure in annual reports tends to increase in the period following a firm's entry into the European capital market. Wallace and Naser (1996) provide evidence that disclosure in annual reports vary positively with asset size and the scope of business operations. Lang and Lundholm (1993) suggest that large firms have incentives to disclose more information than smaller firms to enhance firm value because non-disclosure may be perceived by investors as bad news. Thus, based on the theoretical guidance and empirical findings, I infer that the RC in mature stage firms plays a more dominant role in enhancing the extent and quality of market risk disclosure than that of firms in young stages and, therefore, I hypothesize that:

*Hypothesis 3a. RCs in mature stage firms are associated with greater extent of market risk disclosures.*

*Hypothesis 3b. RCs in mature stage firms are associated with greater higher quality of market risk disclosures.*

## 3. RESEARCH DESIGN AND MEASUREMENT

### 3.1 Dependent Variable

I construct indices to capture the extent and quality of market risk disclosure (EMRD and QMRD) based on the disclosure types (qualitative or quantitative) and disclosure regime (mandatory or voluntary). The qualitative section of the indices covers 14 mandatory and voluntary disclosure items (value at risk [VaR] and sensitivity analysis [Sen]) that are allowed under IFRS 7. The quantitative section of the index covers five facets of VaR disclosures (namely VaR characteristics (four items), summary VaR statistics (five items), inter-temporal comparison (one item), back-testing (two items) and daily VaR figures (two items)) and three facets of Sen Disclosures (namely Sen Characteristics (four items), summary Sen statistics (five items) and inter-temporal comparison (four items)). I follow Pérignon and Smith (2010a) by allocating equal weight to all disclosure items. Details of the disclosure indices are provided in the *Appendix A.*

Prior literature on market risk disclosures uses only single risk exposures (e.g., interest rate see Ahmed et al. 2004) or employs one market risk format (e.g., Tabular format see Rajgopal 1999; Jorion 2002a). I avoid this limitation by incorporating all risk exposures (e.g., interest rate, foreign currency risk and equity price risk), reporting effects (e.g., cash flow, fair value, earnings) and diverse market risk formats (Sen, VaR and tabular). Furthermore, to improve accuracy, validity and consistency of my indices, I consider several steps. First, I develop the indices based on the prior academic literature (e.g., Hodder and Mcanally 2001; Pérignon and Smith 2010a). Second, consistent with Plumlee et al. (2009), I use guidelines from professional bodies (e.g., BCBS 2002, 2003) in constructing the indices.

Third, I follow the prior studies (e.g., Clarkson et al. 2006) to apply accounting standards (e.g., the IFRS 7 market risk disclosures section) to increase the credibility of the scoring.

**Extent of Market Risk Disclosures (*EMRD*)**

I construct the extent of market risk disclosures (*EMRD)* index based on the total score obtained from both the VaR and Sen formats scaled by the formats' maximum expected score:

$$\boldsymbol{EMRD} = \sum_{\mathbf{t=1}}^{\boldsymbol{n_{i1=14}}} \frac{\boldsymbol{Qulitative\_Items\ X_{ij}}}{\boldsymbol{n_{e,j}}} + \sum_{\mathbf{t=1}}^{\boldsymbol{n_{i2=14(3)+13(3)}}} \frac{\boldsymbol{Quantitative\_Items\ X_{ij}}}{\boldsymbol{n_{e,j}}} \qquad \textit{Eq. (1)}$$

$X_{ij}$ = 1 if $i^{th}$ item is disclosed for $j^{th}$ firm

$n_{ej}$ = total maximum expected score for qualitative and quantitative disclosures for $j^{th}$ firm

$n_{j1}$ = total score ($n_{j1} \leq 14$) from qualitative disclosures for $j^{th}$ firm

$n_{j2}$ = total score from quantitative disclosure for $j^{th}$ firm. For VaR format score = number of quantitative risk disclosure *x* maximum number of risk exposures disclosed. Same process is applied for Sen format.[82]

**Quality of Market Risk Disclosures (*QMRD*)**

Quality of market risk disclosures (*QMRD)* index is constructed based on the risk coverage, which is the sum of the score of: (1) qualitative market risk disclosures and (2) disaggregation in quantitative market risk disclosures scaled by the number of risk exposures reported in the annual report:

$$\boldsymbol{QMRD} = \sum_{\mathbf{t=1}}^{\boldsymbol{n_{j1=14}}} \boldsymbol{Qulitative\_Items\ X_{ij}} + \sum_{\mathbf{t=1}}^{\boldsymbol{n_{j2=14(3)+13(3)}}} \frac{\boldsymbol{Quanttitative\_Items\ X_{ij}}}{\boldsymbol{No.of\ market\ risk\ exposure}}$$

*Eq. (2)*

[82] Quantitative disclosure component is derived from the Var and Sen format. For both formats, maximum number of risk exposures in the GCC financial firms can be three. For example, if firm j discloses two risk exposures (e.g., interest rate and foreign currency risk) under VaR format, maximum quantitative VaR score will be 28 (14 items * 2 exposures). Same process is also followed for Sen format.

$X_{ij}$ = 1 if $i^{th}$ item is disclosed for $j^{th}$ firm

$n_{j1}$ = total score ($n_{j1} \leq 14$) from qualitative disclosures for $j^{th}$ firm

$n_{j2}$ = total score from quantitative disclosures for $j^{th}$ firm. For VaR format, the score = number of quantitative risk disclosures *x* maximum number of risk exposures disclosed. I follow same process for Sen format. Then, the total score from quantitative risk disclosures is calculated as the sum of the scores from VaR and Sen formats scaled by the number of market risk exposures. Thus, QMRD is the sum of the total qualitative and quantitative disclosures.

### 3.2 Independent Variable

The independent variable (RC) consists of a number of aggregated and disaggregated variables.

#### 3.2.1 Risk Committee – Dummy (RC_D).

The independent variable, RC_D, is a dichotomous variable which captures the existence of a separate RC. More specifically, RC_D takes the value of 1 if the firm has a dedicated RC in year t; 0 otherwise.

#### 3.2.2 Risk Committee (RC) Characteristics.

To estimate the role of RC characteristics in affecting the extent and quality of market risk disclosures, I regress individual RC characteristics with respect to *EMRD* and *QMRD*. In the regression model, the following variables are considered:

**3.2.2.1 RC_Independence:** I closely follow the GCC code of corporate governance in defining independence of member of RC in the GCC. The GCC corporate governance codes consider several aspects (e.g., directors' prior career in the firm, material relationships, remuneration, family relationship, director relationship, ownership, and board long term tenure) in this regard. For example, in Oman, K.S.A, and U.A.E, an independent director should not be an employee or senior executive of the firm in the previous two years, in Qatar within the proceeding three years and one year in Bahrain, while prior career is not mentioned in the code of corporate governance of Kuwait. In term of material business

relationship, in Bahrain the director is independent if he/she does not have any financial relationship exceeding 31,000 Bahrain Dinar. Corporate governance codes in all GCC countries restrict the independent director from having any material family ties with any of the companies' advisors, directors and employees. In Bahrain, Qatar, K.S.A and U.A.E, independent directors should not have significant shareholdings (defined as more than 10% of the issued capital of the firm). Hence, in this study, the director is considered independent if he/she meets the criteria of independence as per that country's code of corporate governance. Although all codes in the GCC discuss the independent director's requirement on the board and audit committee, there is no such requirement for the RC. In this study, I follow Kang et al. (2007) and measure RC_Independence as a dummy variable that takes on the value of 1 if the majority of directors in a RC are independent; 0 otherwise.

**3.2.2.2 RC_Qualification:** I incorporate two measures of qualification. First, following Song and Windram (2004), I proxy financial literacy by academic qualification in finance and accounting (i.e., Bachelor/ Master/PhD). Second, I follow Bedard et al. (2004) and Tao and Hutchinson (2013) and use professional qualification in finance and accounting (e.g., CPA/ CFA/ ACCA). Since the background, experience and skills of directors are mostly unavailable in the annual reports (corporate governance codes also do not require firms to disclose these in annual report), I am unable to include these attributes in measuring the qualification. In sum, qualification is a dummy variable that takes on the value of 1 if at least one director in RC has academic and/or professional qualification in finance/accounting, 0 otherwise.

**3.2.2.3 RC_Size:** Risk committee size is a discrete variable that captures the number of directors in RC.

#### 3.2.2.4 Factor Analysis of Risk Committee (RC_Factor)

This independent variable captures RC characteristics as a whole. Following Tao and Hutchinson (2013), I conduct factor analysis of the three RC characteristics explained above (See Table 4.2, Panel A for detail RC_Factor).

### 3.3 Control Variables

Prior research relating to risk disclosure reveals several firm characteristics, industry factors and country-specific variables that affect the extent of risk disclosures. I control for these variables. Firm size (*Size*) has consistently been associated with increased disclosure levels (Eng and Mak 2003; Linsley and Shrives 2006). I measure firm size as the natural log of total assets at year end. Firms with high leverage are expected to have more disclosure owing to greater monitoring by creditors. Hence, I control for *Leverage* which is the sum of the total short- and long-term liabilities scaled by total assets. Singhvi and Desai (1971) suggest that firms with good performance may have an incentive to disclose detailed information to support the continuance of their positions and remuneration. Hence, I control for firm's profitability using return on equity (*ROE*). Furthermore, Al-Shammari et al. (2008) find that IAS/IFRS compliance in GCC countries is driven by auditor quality. Hence, I control for auditor quality by incorporating a *Big4* variable that takes on a value of 1 if the firm is audited by a Big4 audit firm; 0 otherwise. Prior studies (e.g., Carcello and Neal 2003b; Srinivasan 2005) show that AC characteristics (e.g., AC independence, qualification, experience and size) have a significant impact on disclosure and financial reporting quality. To control the impact of these characteristics, I conduct the factor analysis of four AC characteristics (See Table 2, Panel B) and include AC_Factor with eigenvalue >1 as a control variable. I also control for firm level corporate governance by including a Firm_CG index that covers three items (e.g., independence of BOD, duality of CEO/Chairman, and firm's director with outside directorship seat). Ali et al. (2007) find that family ownership and

directors who represent family ownership on the board have reduces the disclosure of corporate governance. Eng and Mak (2003) and Cheng and Courtenay (2006) find that the directors who represent government shareholding plays a significant role in enhancing a firm's transparency. Therefore, I control for both shareholding pattern by including family (Family_Dir) and government (Gov_Dir) ownership variables that take a value of 1 if there is at least one director in the board who represents family ownership (and government ownership), 0 otherwise. I include fixed year effects and market risk format fixed effects to control for year effect, and effect of the type of method used to disclose market risk exposures. To control for industry and country-level differences on the disclosure level, I include industry and country dummy variables respectively. I also add MRD format to fix the effects of the firms that disclose 2 or more formats, which consequently increases the disclosures' items of the firms. Finally, in all regression models, I include standard errors to mitigate potential heteroskedasticity and serial correlation dependence issues.

### 3.4 Empirical Model

To examine the association between the existence of a separate RC and the extent and quality of market risk disclosures, I employ the following Ordinary Least Squares (OLS) model:

$$EMRD/QMRD_{i,t} = a_0 + a_1 RC\_D_{i,t} + a_2 Size_{i,t} + a_3 Leverage_{\ i,t} + a_4 ROE_{\ i,t} + a_5 Big4_{i,t} + a_6 AC\_Factor_{i,t} + a_7 Firm\_CG_{i,t} + a_8 Family\_Dir_{\ i,t} + a_9 Gov\_Dir_{i,t} + Year\ FE + IND\ FE + MR\ Format\ FE + Country\ FE + \varepsilon_{i,t} \quad \textit{Eq. (3)}$$

Main variable of interest is RC_D. I predict $a_1$ to be positive and significant for both $H_{1a}$ and $H_{1b}$.

To examine the association between RC characteristics and market risk disclosures, I replace RC_D with RC_Independence, RC_Qualification, and RC_Size. I also test the association between the factor value of RC characteristics and the extent and quality of market risk disclosures by replacing RC_D with RC_Factor.

# 4. EMPIRICAL RESULTS AND DISCUSSION

## 4.1 Descriptive Statistics

Table 4.1 reports the summary statistics for the variables included in the regression models. The mean values for *EMRD* and *QMRD* indices are 0.564 and 7.707 with a standard deviation of 0.281 and 3.754, respectively. Although none of the GCC corporate governance codes during the sample period require firms to establish a separate RC, 38.70% of the sample firms exhibit the existence of a separate RC. Panel A also shows that for only 12% of firms, the majority of the directors are independent. Moreover, only 6.8% of firms have at least one director with academic/ professional qualification. I also report that in the GCC countries, the mean size of the RC is 0.993 (with a standard deviation of 1.876). However, when firms with only a separate RC are considered, the mean RC_Size becomes 4.1. Moreover, descriptive statistics show that there is a large dispersion among the sample firms in terms of control variables, which illustrates a considerable diversity in the sample.

**Table 4.1 Descriptive Statistics**

| Variable | n | Mean | S.D. | Mdn | 0.75 |
|---|---|---|---|---|---|
| EMRD | 677 | 0.564 | 0.281 | 0.550 | 0.740 |
| QMRD | 677 | 7.707 | 3.754 | 7.500 | 10.000 |
| RC_D | 677 | 0.387 | 0.487 | 0.000 | 1.000 |
| Factor_RC | 677 | -0.007 | 0.836 | -0.602 | 0.000 |
| RC_Independence | 677 | 0.120 | 0.325 | 0.000 | 0.000 |
| RC_Qualification | 677 | 0.068 | 0.300 | 0.000 | 0.000 |
| RC_Size | 677 | 0.994 | 1.862 | 0.000 | 0.000 |
| Size | 677 | 7.126 | 2.023 | 6.970 | 8.593 |
| Leverage | 677 | 0.663 | 0.319 | 0.716 | 0.851 |
| ROE | 677 | 0.086 | 0.153 | 0.110 | 0.171 |
| Big4 | 677 | 0.901 | 0.299 | 1.000 | 1.000 |
| AC_Factor | 677 | 0.002 | 0.837 | 0.000 | 0.803 |
| Firm_CG | 677 | 0.374 | 0.278 | 0.333 | 0.667 |
| Family_Dir | 677 | 0.648 | 0.478 | 1.000 | 1.000 |
| Gov_Dir | 677 | 0.415 | 0.493 | 0.000 | 1.000 |

The variable definitions are in *Appendix C*.

## 4.2 Factor Analysis

Table 4.2, Panel A and B presents results for the factor analysis of RC and AC characteristics respectively. The eigenvalue of the RC(AC) Factor, divided by the number of characteristics,

gives 53.45% (66.8%) as the proportion of the variance of the characteristics explained by the Factor. This proportion of the eigenvalue suggests that the RC_Factor and AC_Factor are highly representative.

### 4.3 Univariate *t*-Test

Table 4.3, shows the mean difference and *t*-statistic of variables for firms with (and without) a separate RC. I find that the extent and quality of market risk disclosures are significantly higher for firms with a separate RC (*t*-value = 3.064 and 2.959, $p<.01$ for EMRD and QMRD, respectively). This supports the hypotheses (Hypotheses 1a and 1b) that firms with a separate RC disclose more market risk information. This table also shows that firms that establish a separate RC are larger in terms of size, and have more government directors (*Gov_Dir*), better AC characteristics (*AC_Factor*) and corporate governance (*Firm_CG*), and assign a quality auditor (*Big4*).

**Table 4.2: Factor Analysis for Risk Committee (RC) and Audit Committee (AC)**

**Panel A: Factor Analysis for Risk Committee**

| Factor | Eigenvalue | Difference | Proportion Loading | Cumulative |
|---|---|---|---|---|
| RC_Independence | 1.604 | 0.650 | 0.535 | 0.535 |
| RC_Qualification | 0.954 | 0.511 | 0.318 | 0.853 |
| RC_Size | 0.443 | . | 0.147 | 1.000 |
| Rotation: Promax | | | | |

| Factor | Variance | Proportion |
|---|---|---|
| RC_Factor | 1.604 | 0.5345 |

**Factor Loading**

| Variable | Factor1 | Uniqueness |
|---|---|---|
| RC_Independence | 0.8577 | 0.2644 |
| RC_Qualification | 0.3415 | 0.8833 |
| RC_Size | 0.8668 | 0.2487 |

**Panel B Factor Analysis for Audit Committee**

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| AC_Independence | 2.671 | 1.908 | 0.668 | 0.668 |
| AC_Qualification | 0.763 | 0.360 | 0.191 | 0.859 |
| AC_Size | 0.403 | 0.239 | 0.101 | 0.960 |
| AC_Chair Independence | 0.164 | . | 0.040 | 1 |
| Rotation: Promax | | | | |

| Factor | Variance | Proportion |
|---|---|---|
| AC_Factor | 2.671 | 0.668 |

**Factor Loading**

| Variable | Factor1 | Uniqueness |
|---|---|---|
| AC_Independence | 0.8607 | 0.2592 |
| AC_Qualification | 0.5319 | 0.717 |
| AC_Size | 0.7945 | 0.3688 |
| AC_Chair Independence | 0.8706 | 0.2421 |

**Table 4.3 Mean Comparison between firm with RC and without RC**

| | **Risk Committee** | | ***t*-value** |
|---|---|---|---|
| | **Yes** | **No** | |
| EMRD | 0.605 | 0.538 | 3.064*** |
| QMRD | 8.241 | 7.37 | 2.959*** |
| Size | 7.603 | 6.825 | 4.963*** |
| Leverage | 0.682 | 0.651 | 1.243 |
| ROE | 0.089 | 0.084 | 0.396 |
| Big4 | 0.939 | 0.877 | 2.633*** |
| AC_Factor | 0.334 | -0.207 | 8.617*** |
| Firm_CG | 0.323 | 0.406 | 3.831*** |
| Family_Dir | 0.65 | 0.645 | 0.147 |
| Gov_Dir | 0.492 | 0.3662 | 3.264*** |

*, **, and *** denote significance at 10%, 5% and 1% respectively (Two-tail).
Robust t-values in brackets
The variable definitions are in *Appendix C.*

### 4.4 Correlation Analysis

Table 4.4 reports the Pearson correlation matrix for variables included in the regression model. As expected, correlations between the extent and quality of market risk disclosures (*EMRD* and *QMRD*, respectively), and the existence of a separate RC (RC_D) are positive and significant (both at $p<0.01$). Moreover, *EMRD* and *QMRD* are also positively correlated with *RC_Factor* (both at $p<0.05$). Correlation analysis also shows that individual RC characteristics (except independence of the RC) have a positive and significant (at $p<.05$) relation with *EMRD* and *QMRD*. Overall, the correlations between *EMRD* and *QMRD* and control variables have the expected signs and statistical significance.

### Regression Analysis

### 4.5 Association between Risk Committee (RC_D) and Extent and Quality of Market Risk Disclosure (*EMRD* and *QMRD*)

Table 4.5 presents the OLS estimates[83] of the association between the existence of a separate RC (RC_D) and the extent and quality of market risk disclosures (*EMRD* and *QMRD*, respectively). Consistent with *Hypothesis 1a* and *1b*, I find that the coefficients of the relationship between a separate RC (RC_D) and market risk disclosures (*EMRD* and *QMRD*) are positive and statistically significant (with $a_1$ = 0.0493 and 0.5980, respectively; both at $p < 0.01$), suggesting that the existence of a separate RC enhances both the extent and quality of market risk disclosures. These findings are largely consistent with the predictions of multi-theoretical framework that incorporates insights from agency, legitimacy, resource-based and stakeholder theories. The regression results support the theoretical argument that a separate RC has more time, skills and resources to follow robust processes to identify, monitor, manage, and report market risks to satisfy its diverse stakeholders. These results also

[83] In examining the association between the existence of a separate RC and market risk disclosures, I conduct the Lagrangian Multiplier (LM) test of the random effect model, which suggests that the cohort effect is zero and that the pooling regression is most suitable in this case. Moreover, Hausman test (1978) for fixed vs random effect models reveal that fixed effect model is not suitable for my study.

**Table 4.4: Pearson Correlation Matrix**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EMRD | 1 | | | | | | | | | | | | | | |
| QMRD | 0.977*** | 1 | | | | | | | | | | | | | |
| RC_D | 0.117*** | 0.113*** | 1 | | | | | | | | | | | | |
| Factor_RC | 0.08** | 0.084** | 0.745*** | 1 | | | | | | | | | | | |
| RC_Independence | -0.014 | -0.01 | 0.464*** | 0.789*** | 1 | | | | | | | | | | |
| RC_Qualification | 0.089** | 0.088** | 0.214*** | 0.372*** | 0.114*** | 1 | | | | | | | | | |
| RC_Size | 0.078** | 0.08** | 0.672*** | 0.851*** | 0.647*** | 0.223*** | 1 | | | | | | | | |
| Size | 0.490*** | 0.495*** | 0.188*** | 0.066* | -0.031 | 0.097** | 0.058 | 1 | | | | | | | |
| Leverage | 0.304*** | 0.29*** | 0.048 | 0.014 | -0.043 | 0.022 | 0.024 | 0.483*** | 1 | | | | | | |
| ROE | 0.069* | 0.056 | 0.015 | 0.023 | 0.000 | -0.069* | 0.019 | 0.200*** | 0.069* | 1 | | | | | |
| Big4 | 0.249*** | 0.255*** | 0.101*** | 0.113*** | 0.107*** | 0.026 | 0.06 | 0.264*** | 0.192*** | 0.116*** | 1 | | | | |
| AC_Factor | 0.076** | 0.059 | 0.315*** | 0.411*** | 0.332*** | 0.166*** | 0.34*** | -0.022 | 0.095** | 0.032 | 0.089** | 1 | | | |
| Firm_CG | -0.054 | -0.063* | -0.146*** | 0.108*** | 0.262*** | 0.12*** | 0.249*** | -0.170*** | -0.109*** | -0.052 | 0.031 | 0.203*** | 1 | | |
| Family_Dir | 0.006 | 0.008 | -0.006 | -0.029 | -0.005 | 0.064* | 0.051 | 0.062 | 0.008 | 0.014 | -0.130*** | -0.087** | 0.242*** | 1 | |
| Gov_Dir | 0.202*** | 0.184*** | 0.125*** | 0.109*** | 0.059 | 0.069* | 0.149*** | 0.263*** | 0.079** | 0.107*** | 0.169*** | 0.136*** | -0.002 | 0.055 | 1 |

*, **, and *** denote significance at 1%, 5% and 10% respectively (Two-tail).
The variable definitions are in *Appendix* C.

reveals that the extent and quality of market risk disclosures are higher for larger firms with a stronger corporate governance structure. On the other hand, the existence of a family director is an impediment to both the extent and quality of market risk disclosures (β = -0.0613 and -0.7352, at $p$<.01). This conforms with the findings of Ali et al. (2007) that a family director has more power to obtain and hold a firm's information, and to act in a manner to benefit themselves rather than for the shareholders' benefit. The regression results indicate that a separate RC can play a significant role in improving the extent and quality of market risk disclosures in the presence of reputable auditors (*Big4*) and AC characteristics (*AC_Factor*). These results are consistent with the assertion by Aebi et al. (2012) that separating risk management from the AC through forming a stand-alone RC, specifically in financial firms, helps the board of directors to have more control over the firm's risk management and risk reporting.

**Table 4.5: Association between RC_D and Market Risk Disclosures (EMRD and QMRD)**

| | Model 1 | Model 2 |
|---|---|---|
| Dependent Variable | EMRD | QMRD |
| Intercept | 0.6539*** | 9.0062*** |
| | (8.806) | (9.621) |
| **RC_D** | **0.0493*** ** | **0.5980*** ** |
| | **(3.956)** | **(3.149)** |
| Size | 0.0056 | 0.1417* |
| | (0.982) | (1.707) |
| Leverage | 0.0192 | -0.0259 |
| | (1.313) | (-0.114) |
| ROE | -0.0124 | -0.9282* |
| | (-0.368) | (-1.676) |
| Big4 | -0.0042 | 0.0886 |
| | (-0.248) | (0.400) |
| AC_Factor | -0.0102 | -0.1467 |
| | (-1.063) | (-1.100) |
| Firm_CG | 0.1211*** | 1.3971*** |
| | (4.695) | (3.831) |
| Family_Dir | -0.0613*** | -0.7352*** |
| | (-4.240) | (-3.602) |
| Gov_Dir | 0.0240* | 0.1241 |
| | (1.778) | (0.647) |
| Year FE | Yes | Yes |
| Industry FE | Yes | Yes |
| Country FE | Yes | Yes |
| Method FE | Yes | Yes |
| N | 677 | 677 |
| Adj. R-sq | 73.9% | 69.1% |

*, **, and *** denote significance at 10%, 5% and 1% respectively (Two-tail).
Robust t-values in brackets, the variable definitions are in *Appendix C.*

### 4.6 Association between Risk Committee (RC) Characteristics and Extent and Quality of Market Risk Disclosure (EMRD and QMRD)

Table 4.6 reports the results of the association between RC characteristics, and extent and quality of market risk disclosures (*EMRD and QMRD,* respectively). Model 1 (Model 2) shows that the association between RC_Independence and *EMRD (QMRD)* is positive, albeit insignificant. In accordance with the view that independent directors of the RC are more effective monitors than inside directors, board independence is likely to improve the EMRD (QMRD) significantly. However, the insignificant association in regression result support the view that independent directors lack the institutional context as insiders do and thus, may not play a significant monitoring role. Moreover, institution settings (e.g., dominance of family directors, lack of qualified independent directors) may also constrain the effective functioning of independent directors in the GCC. This result is also consistent with the findings of Haniffa and Cooke (2002) that the presence of independent directors has no association with disclosure levels. Model 3 and Model 4 suggest that RC_Qualification has a positive ($a_1$ = 0.0868 and 1.1011) and significant (both at $p<.01$) association with *EMRD and QMRD,* respectively. These results support *hypothesis 2b.* The positive and significant association of RC_Qualification with *EMRD* and *QMRD* is consistent with the notion that qualified directors better understand and apply the risk management and accounting principles and standards in the risk management process, which improves the effectiveness of the RC in risk monitoring, management, and reporting. These results also justify the regulation of GCC countries requiring qualifications for the members of different board committees. For example, in Bahrain, all directors in the AC must be qualified, while in the other remaining countries, the regulators require at least one of the directors of AC to be qualified. Although I do not have any expectation with respect to RC_Size and EMRD (QMRD), the regression results in Model 5 (Model 6) suggest that RC_Size improve ($a_1$ = 0.0229 and

**Table 4.6: Association between Risk Committee (RC) Characteristics and Market Risk Disclosures (EMRD and QMRD)**

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 |
|---|---|---|---|---|---|---|---|---|
| | EMRD | QMRD | EMRD | QMRD | EMRD | QMRD | EMRD | QMRD |
| Intercept | 0.6745*** | 9.2473*** | 0.6985*** | 9.5571*** | 0.6635*** | 9.1009*** | 0.6713*** | 9.3506*** |
| | (8.859) | (9.675) | (8.985) | 9.828 | (9.723) | 10.598 | (8.796) | (9.816) |
| **RC_Independence** | **0.0276** | **0.3777** | | | | | | |
| | **(1.34)** | **(1.23)** | | | | | | |
| **RC_Qualification** | | | **0.0868*** ** | **1.1011*** ** | | | | |
| | | | **(2.892)** | **(2.65)** | | | | |
| **RC_Size** | | | | | **0.0229*** ** | **0.3066*** ** | | |
| | | | | | **(7.051)** | **(6.45)** | | |
| **RC_Factor** | | | | | | | **0.0201*** ** | **0.2531*** ** |
| | | | | | | | **(3.60)** | **(3.03)** |
| Size | 0.0086 | 0.1774** | 0.0067 | 0.1544** | 0.0072 | 0.1590** | 0.0070 | 0.1574* |
| | (1.483) | (2.13) | (1.267) | (1.97) | (1.367) | (2.07) | (1.24) | (1.92) |
| Leverage | 0.0117 | -0.1131 | 0.0129 | -0.1002 | 0.0145 | -0.0757 | 0.0162 | -0.0585 |
| | (0.797) | (-0.51) | (0.921) | (-0.47) | (0.962) | (-0.31) | (1.11) | (-0.26) |
| ROE | -0.0145 | -0.9469* | -0.0031 | -0.8059 | -0.0103 | -0.8915* | -0.0066 | -0.8386 |
| | (-0.428) | (-1.70) | (-0.088) | (-1.42) | (-0.315) | -(1.65) | (-0.19) | (-1.52) |
| Big4 | -0.0008 | 0.1261 | 0.0024 | 0.1684 | 0.0000 | 0.1384 | -0.0040 | 0.0888 |
| | (-0.050) | (0.57) | (0.141) | (0.76) | (0.003) | (0.62) | (-0.24) | (0.40) |
| AC_Factor | -0.0057 | -0.0968 | -0.0084 | -0.1279 | -0.0175* | -0.2543* | 0.0109 | 0.2145 |
| | (-0.575) | (-0.70) | (-0.902) | (-0.99) | (-1.850) | (-1.94) | (0.41) | (0.57) |
| Firm _CG | 0.0895*** | 1.0108*** | 0.0819*** | 0.9170** | 0.0746*** | 0.8110** | 0.1036*** | 1.1808*** |
| | (3.426) | (2.74) | (3.137) | (2.49) | (2.931) | (2.26) | (3.90) | (3.16) |
| Family_Dir | -0.0577*** | -0.6924*** | -0.0617*** | -0.7422*** | -0.0624*** | -0.7556*** | -0.0535*** | -0.6306*** |
| | (-3.944) | (-3.34) | (-4.383) | (-3.69) | (-4.456) | (-3.80) | (-3.82) | (-3.16) |
| Gov_Dir | 0.0243* | 0.127 | 0.0246* | 0.1305 | 0.0195 | 0.0632 | 0.0246* | 0.1313 |
| | (1.815) | (0.66) | (1.835) | (0.68) | (1.497) | (0.33) | (1.86) | (0.70) |
| Year FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Method FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| N | 677 | 677 | 677 | 677 | 677 | 677 | 677 | 677 |
| Adj. R-sq | 73.5% | 68.70% | 74.2% | 70% | 75.0% | 70.30% | 74.5% | 70% |

0.3066; p<.01) the extent and quality of market risk disclosures respectively. The association of RC_Size with *EMRD* and *QMRD* supports a resource-based view that posits that a large RC facilitates the accumulation of diverse risk management skills, knowledge, experience and external links, which in turn, facilitates extensive and quality risk disclosures. Model 7 and Model 8 reports the results for *hypothesis 2d*, suggesting that the factor value of RC characteristics (RC_Factor) is positively ($a_1$ = 0.0201 and .2531; at *p*<.01) associated with both the extent and quality of market risk disclosures.

### 4.7 Additional Analysis: Risk Committee, Firm Life Cycle, and Market Risk Disclosures (EMRD and QMRD)

Motivated by the prior findings (e.g., Liu et al. 2004; Miihkinen 2012; Solomon et al. 2000) that firm size, not the risk level, is the key characteristic affecting the level of risk disclosure, I test the role of the firm life cycle on the association between the RC and market risk disclosures. Following DeAngelo et al. (2006), DeAngelo et al. (2010), Owen and Yawson (2010) and Hasan et al. (2013), I use retained earnings as a proportion of total assets (RE/TA) and retained earnings as a proportion of total equity (RE/TE) as proxies for firm life cycle. DeAngelo et al. (2006) argue that these proxies measure the extent to which a firm is self-financing or reliant on external capital. A high RE/TA and RE/TE imply that a firm is more mature or old, while a firm with a low RE/TA and RE/TE tend to be young and growing. The regression model is:

$$\begin{aligned}\text{EMRD/QMRD}_{i,t} = {} & \beta_0 + \beta_1 \text{RC\_D}_{i,t} + \beta_2 \text{RE/TA}_{i,t}(\text{or RE/TE}) + \beta_3 \text{RC\_D}_{i,t} * \text{RE/TA}_{i,t}(\text{or RE/TE}_{i,t}) + \\ & \beta_4 \text{Size}_{i,t} + \beta_5 \text{Leverage}_{i,t} + \beta_6 \text{ROE}_{i,t} + \beta_7 \text{Big4}_{i,t} + \beta a_8 \text{AC\_Factor}_{i,t} + \beta_9 \text{Firm\_CG}_{i,t} + \beta_{10} \text{Family\_Dir}_{i,t} + \\ & \beta_{11} \text{Gov\_Dir}_{i,t} + \text{Year FE} + \text{IND FE} + \text{Country FE} + \text{MRD Format FE} + \varepsilon_{i,t}\end{aligned} \quad \text{Eq. (4)}$$

To examine the association between factor value of RC characteristics (RC_Factor) and market risk disclosures, I replace *RC_D* with *RC_Factor* in the above model.

**Table 4.7: Risk Committee (RC), Firm Life Cycle (RE/TA) and Market Risk Disclosures (EMRD and QMRD)**

| | RE/TA | | | | RE/TA_3 years | | | |
|---|---|---|---|---|---|---|---|---|
| Dependent Variable | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 |
| | EMRD | QMRD | EMRD | QMRD | EMRD | QMRD | EMRD | QMRD |
| Intercept | 0.1079* | 1.0210 | 0.1129* | 1.1091 | 0.1485** | 2.4461** | 0.2010*** | 3.0087*** |
| | (1.80) | (1.12) | (1.87) | (1.18) | (2.451) | (2.517) | (3.515) | (3.271) |
| **RC_D** | **0.0232** | **0.1674** | | | **0.0760*** ** | **0.6889*** | | |
| | **(1.39)** | **(0.64)** | | | **(3.180)** | **(1.781)** | | |
| **RE/TA** | **0.0324*** ** | **0.5159*** ** | **0.0637*** ** | **0.9982*** ** | **0.2074*** ** | **2.8231** ** | **0.0544** ** | **0.8405** ** |
| | **(3.05)** | **(3.51)** | **(6.54)** | **(7.05)** | **(2.688)** | **(2.559)** | **(2.101)** | **(2.237)** |
| **RC_D * RE/TA** | **0.1446*** ** | **2.3388*** ** | | | **-0.2216** | **-0.7891** | | |
| | **(6.00)** | **(6.90)** | | | **(-1.489)** | **(-0.336)** | | |
| **RC_Factor** | | | **0.0175*** ** | **0.2223** ** | | | **0.0260** ** | **0.3075*** |
| | | | **(2.63)** | **(2.17)** | | | **(2.404)** | **(1.948)** |
| **RC_Factor * RE/TA** | | | **0.0304*** ** | **0.4194*** ** | | | **0.0532** ** | **0.8764** ** |
| | | | **(3.97)** | **(3.90)** | | | **(2.108)** | **(2.539)** |
| Size | 0.0180*** | 0.3466*** | 0.0185*** | 0.3390*** | 0.0035 | 0.1002 | 0.0032 | 0.1022 |
| | (2.62) | (3.48) | (2.67) | (3.37) | (0.536) | (1.052) | (0.515) | (1.136) |
| Leverage | 0.0475* | 0.3232 | 0.0548** | 0.4441 | 0.0460* | 0.2502 | 0.0475* | 0.2535 |
| | (1.93) | (0.94) | (2.15) | (1.26) | (1.715) | (0.677) | (1.858) | (0.723) |
| ROE | -0.0892** | -2.1748*** | -0.0723* | -1.9307*** | -0.0515 | -1.7927** | -0.0385 | -1.5066* |
| | (-2.33) | (-3.55) | (-1.88) | (-3.11) | (-1.083) | (-2.287) | (-0.786) | (-1.843) |
| Big4 | 0.0096 | 0.3234 | 0.0036 | 0.2456 | 0.0183 | 0.4143 | 0.0111 | 0.3194 |
| | (0.44) | (1.19) | (0.16) | (0.88) | (0.692) | (1.253) | (0.413) | (0.942) |
| AC_Factor | -0.0232** | -0.3594** | -0.0270** | -0.4152*** | -0.0154 | -0.2429 | -0.0239** | -0.3823** |
| | (-2.14) | (-2.39) | (-2.44) | (-2.69) | (-1.323) | (-1.474) | (-2.086) | (-2.388) |
| Firm_CG | 0.1024*** | 1.0997** | 0.1084*** | 1.2539*** | 0.1290*** | 1.4372*** | 0.0691* | 0.7111 |
| | (3.18) | (2.46) | (3.32) | (2.74) | (3.657) | (2.911) | (1.895) | (1.398) |
| Family_Dir | -0.0567*** | -0.6568*** | -0.0637*** | -0.7743*** | -0.0550*** | -0.6445** | -0.0440** | -0.4991* |
| | (-3.28) | (-2.72) | (-3.68) | (-3.17) | (-2.861) | (-2.336) | (-2.303) | (-1.849) |
| Gov_Dir | -0.0005 | -0.2629 | 0.0042 | -0.1685 | 0.0120 | -0.0283 | 0.0183 | 0.0336 |
| | (-0.03) | (-1.08) | (0.24) | (-0.71) | (0.681) | (-0.116) | (1.055) | (0.139) |
| Year FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Method FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| N | 529 | 529 | 529 | 529 | 492 | 492 | 492 | 492 |
| Adj. R-sq | 66.7% | 60.3% | 65.8% | 58.9% | 0.649 | 0.570 | 0.661 | 0.588 |

**Table 4.8: RE/TA based on Sample Partition: Young, Maturity and Old**

| | Young | | | | Mature | | | | Old | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *EMRD* | | *QMRD* | | *EMRD* | | *QMRD* | | *EMRD* | | *QMRD* | |
| Intercept | -0.3370*** | -0.3054*** | -4.5218*** | -4.250*** | 0.6824*** | 0.702*** | 8.9474*** | 9.6985*** | 0.0676 | 0.2672** | -0.6126 | 3.6901** |
| | (-3.53) | (-3.20) | (-3.19) | (-2.91) | (4.61) | (5.46) | (4.46) | (5.69) | (0.70) | (2.04) | (-0.46) | (1.99) |
| **RC_D** | **0.0051** | | **-0.4097** | | **0.0602*** | | **1.0529**** | | **0.0871***** | | **1.3729***** | |
| | **(0.20)** | | **(-0.88)** | | **(1.92)** | | **(2.41)** | | **(3.17)** | | **(3.33)** | |
| **Factor_RC** | | **0.0216** | | **0.1987** | | **0.0300**** | | **0.542***** | | **0.0412**** | | **0.7476**** |
| | | **(1.64)** | | **(1.02)** | | **(2.28)** | | **(2.98)** | | **(2.08)** | | **(2.34)** |
| Size | 0.0492*** | 0.0459*** | 0.7287*** | 0.6420*** | 0.0235* | 0.0230* | 0.4366** | 0.4286** | -0.0193 | -0.0186 | 0.0293 | 0.0409 |
| | (3.85) | (3.53) | (4.00) | (3.57) | (1.74) | (1.79) | (2.28) | (2.38) | (-1.61) | (-1.48) | (0.17) | (0.23) |
| Leverage | 0.0962*** | 0.0788*** | 1.4281*** | 1.5939*** | 0.0793 | 0.0869 | -0.1800 | -0.0381 | 0.0178 | 0.0375 | -0.3663 | -0.0000 |
| | (3.49) | (3.43) | (3.58) | (4.00) | (1.11) | (1.24) | (-0.18) | (-0.04) | (0.37) | (0.79) | (-0.51) | (-0.00) |
| ROE | -0.1324** | -0.1163* | -2.2975** | -2.1250** | -0.0719 | -0.0831 | -2.6497* | -2.8371* | -0.2157** | -0.2030* | -3.8504*** | -3.5511** |
| | (-2.01) | (-1.79) | (-2.29) | (-2.11) | (-0.73) | (-0.85) | (-1.78) | (-1.86) | (-2.13) | (-1.96) | (-2.69) | (-2.44) |
| Big4 | -0.0621 | -0.0608 | -0.9842* | -0.9977* | 0.0742 | 0.0778 | 1.1815 | 1.2446* | -0.0182 | -0.0230 | 0.3055 | 0.2318 |
| | (-1.49) | (-1.52) | (-1.77) | (-1.93) | (1.34) | (1.47) | (1.62) | (1.80) | (-0.59) | (-0.78) | (0.78) | (0.62) |
| AC_Factor | -0.0588*** | -0.0617*** | -0.6369** | -0.7317** | -0.0027 | -0.0092 | -0.0536 | -0.1777 | -0.0360** | -0.0265 | -0.4628* | -0.3383 |
| | (-2.90) | (-3.00) | (-2.14) | (-2.52) | (-0.13) | (-0.44) | (-0.20) | (-0.65) | (-2.16) | (-1.57) | (-1.91) | (-1.48) |
| Firm_CG | 0.0529 | 0.0338 | 0.5971 | 0.6855 | 0.1758*** | 0.1119* | 1.9164** | 0.7917 | 0.1180** | 0.0934* | 1.2779* | 0.8772 |
| | (1.03) | (0.66) | (0.80) | (0.88) | (3.01) | (1.74) | (2.45) | (0.92) | (2.43) | (1.88) | (1.90) | (1.29) |
| Family_Dir | -0.062 | -0.0593 | -0.8354 | -0.7857 | -0.0246 | -0.0201 | -0.1060 | -0.0295 | -0.0885*** | -0.0965*** | -1.0628*** | -1.2082*** |
| | (-1.55) | (-1.47) | (-1.60) | (-1.48) | (-0.78) | (-0.63) | (-0.25) | (-0.07) | (-3.66) | (-3.97) | (-3.32) | (-3.75) |
| Gov_Dir | -0.0248 | -0.0238 | -0.4061 | -0.3239 | -0.0254 | -0.0245 | -0.3100 | -0.2905 | 0.0791*** | 0.0892*** | 0.2307 | 0.3587 |
| | (-0.89) | (-0.87) | (-1.03) | (-0.84) | (-0.77) | (-0.75) | (-0.68) | (-0.64) | (2.68) | (2.93) | (0.55) | (0.88) |
| Year FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Method FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| N | 193 | 193 | 193 | 193 | 162 | 162 | 162 | 162 | 174 | 174 | 174 | 174 |
| Adj. R-sq | 67.7% | 67.9% | 59.7% | 59.7% | 64.6% | 64.8% | 62.2% | 62.7% | 73.9% | 73.3% | 68.8% | 68.4% |

*, **, and *** denote significance at 10%, 5% and 1% respectively (Two-tail).
Robust t-values in brackets,
The variable definitions are in *Appendix C*

Table 4.7 reports the regression results for the association between the RC, firm life cycle, and market risk disclosures. Model 1 and Model 2 show that the interaction between firm life cycle proxy (*RE/TA*) and the RC proxy (*RC_D)* are positive and significant for both measures of market risk disclosures (*EMRD* and *QMRD*). In particular, for the *EMRD* and *QMRD*, the interaction term (β = 0.1446 and 2.3388; $p < 0.01$) indicates that the role of a separate RC in enhancing the extent and quality of the market risk disclosures is more crucial for a mature stage firm (proxied by *RE/TA*). Likewise, Model 3 and Model 4 also reflect the vital role of the RC characteristics (RC_Factor) in enhancing the market risk disclosures (β = 0.0304 and 0.4194; $p<.01$) of mature stage firms. These results are also economically significant. For instance, Model 3 (Model 4) shows that RC_Factor enhances (i.e., net effect) EMRD (QMRD) of mature stage firms by *0.0037* (*0.3886*), which are significant at $p<.01$.[84] An f-test (f-stat 34.31) on the equality of RC_D * RE/TA + RC_D = RC_D for Model 1 (EMRD) is rejected at the one percent level. A similar interpretation holds for the interactive variable in Model 2 – Model 4. The impact of firm life cycle on the association between the RC (RC_D and RC_Factor) and market risk disclosures (EMRD and QMRD) is consistent with agency theory, stakeholder theory and resource-based theory. Agency theory suggests that conflicts between managers and outside investor increase as the firm moves to the mature stage. Therefore, investors in mature stage firms demand more disclosure and transparency to reduce the informational gap. The regression results support this view and show that existence of a separate RC (RC_D) and RC characteristics (RC_Factor – that consists of RC_Independence, RC_Qualification and RC_Size) improve both the extent and quality of market risk disclosures of mature stage firms (proxied by RE/TA). A positive and significant role of RC_D and RC_Factor in improving market risk disclosures may also provide an incentive of mature firms to disclose more information to enhance firm value by satisfying

[84] Net effect for Model 3 is estimated as (0.0175 *x* RC_Factor) + 0.0304 *x* (RC_Factor * RE/TA) [from Model 3 of Table 5, Panel A] – (.0442 *x* RC_Factor) ) [from Model 4 of Table 4, Panel B]

diverse stakeholders. The results are also consistent with the resource-based view that suggests that mature firms have more resources to form a RC with adequate independence, skills, knowledge, experience and size that may enhance firms' disclosure to entice investors, suppliers and customers. The role of a RC in improving risk disclosure of mature stage firms may also reflect the fact that these firms have more operational complexity and risk exposures that a separate RC can efficiently monitor, manage and report.

One may, however, argue that a high RE/TA in a single year may be an outlier and hence may not necessary reflect firm maturity. To address this concern I construct RE/TA ratio at time t by using RE/TA information from the past 3 years (i.e. from t-3 to t). Model 5 to Model 8 show that regression results, using a rolling average of RE/TA as a life cycle proxy, remain qualitatively similar to those obtained in Model 1 to Model 4.

Despite the analysis using RE/TA and rolling RE/TA strongly supporting the hypothesis that a RC in mature stage firms plays important role in improving the extent and quality of market risk disclosures, it does not provide an indication of the stage the firm has reached in its life cycle. Consequently, I modify DeAngelo et al. (2006) life cycle measure (RE/TA) by partitioning the sample into three life cycle stages. Young firms are those belonging to the cohort with the lowest one-third of RE/TA, mature firms are those belonging to the cohort with the middle one-third of RE/TA and firms with one third of the top RE/TA ratios are classified as old firms. Owen and Yawson (2010) also follow a similar approach to investigating the impact of corporate life cycle on takeover activity. As reported in Table 4.8, RC plays significant positive role in improving risk disclosures for firms with high retained earnings (i.e., mature and old firms). Results also show that a RC in young firms does not have any significant impact on disclosure of risk information. These results suggest that the

findings related to the firm life cycle reported in Table 4.7 are driven by the mature firms in the sample.[85]

To further mitigate the concerns as to whether the results on the impact of RC in improving EMRD and QMRD are sensitive to how the life cycle is measured, I use RE/TE (another life cycle proxy proposed by (DeAngelo et al. 2006)). Table 4.9 shows that RE/TE and Rolling RE/TE give us qualitatively similar results. As a robustness check, I also use firm age as an alternative life cycle measure. It is viewed that life cycle stages are naturally linked to firm age. Pástor and Pietro (2003) also use firm age as a "natural proxy" for investors' uncertainty about the profitability of the firm. I define age as the difference between the current year and the year of incorporation of the firm. Un-tabulated results show that RC_D and RC_Factor have positive and statistically significant ($p$<.05, mostly) impact in enhancing the EMRD and QMRD of an aged firms. Overall, the results using age as an alternative measure of the firm life cycle are similar to those obtained in my main analysis and this helps to justify that the results are not sensitive to the choice of the life cycle proxy.

### 4.8 Endogeneity Test: Two Stage Least Square (2SLS)

Even though OLS estimation suggests a positive and significant association between the existence of a stand-alone RC and market risk disclosure proxies (*EMRD* and *QMRD*), the sign, magnitude, or statistical significance of these estimates may be biased due to endogeneity, i.e., if the RC and the error term are correlated. To address this concern, I adopt a two-stage instrumental variable approach to re-examine the main findings reported in Table 4.5. This approach is appropriate only if the instrumental variables are correlated with the endogenous regressor (here RC proxies) but uncorrelated with the error term of the second-stage regression.

[85] For brevity, results for RE/TE using Owen and Yawson (2010) approach are not tabulated; they may be requested from the authors.

**Table 4.9: Risk Committee (RC), Firm Life Cycle (RE/TE) and Market Risk Disclosures (EMRD and QMRD)**

| | RE/TE t | | | | RE/TE t-3 | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 |
| Dependent Variable | EMRD | QMRD | EMRD | QMRD | EMRD | QMRD | EMRD | QMRD |
| Intercept | -0.0139 | 0.1617 | 0.0251 | 0.4526 | 0.1709*** | 2.6415*** | 0.2015*** | 3.0195*** |
| | (-0.25) | (0.18) | (0.46) | (0.49) | (2.894) | (2.858) | (3.521) | (3.282) |
| **RC_D** | **0.0569*** ** | **0.7252*** ** | | | **0.0122** | **-0.0934** | | |
| | **(3.64)** | **(2.94)** | | | **(0.486)** | **(-0.252)** | | |
| **RE/TA** | **0.0159**** | **0.2709*** ** | **0.0225*** ** | **0.3868*** ** | **0.0204** | **0.2751** | **0.0545**** | **0.8429**** |
| | **(2.07)** | **(2.59)** | **(3.26)** | **(4.04)** | **(0.821)** | **(0.766)** | **(2.104)** | **(2.241)** |
| **RC_D * RE/TE** | **0.0019*** ** | **0.0237*** ** | | | **0.0991**** | **1.7595**** | | |
| | **(4.49)** | **(4.05)** | | | **(2.006)** | **(2.528)** | | |
| **RC_Factor** | | | **0.0435*** ** | **0.6023*** ** | | | **0.3095*** | **0.0261**** |
| | | | **(5.27)** | **(5.17)** | | | **(1.959)** | **(2.410)** |
| **RC_Factor * RE/TE** | | | **0.0042*** | **0.0350** | | | **0.8772**** | **0.0533**** |
| | | | (1.66) | (0.97) | | | (2.540) | (2.109) |
| Size | -0.0062 | -0.0272 | -0.0064 | -0.0249 | 0.0037 | 0.1147 | 0.0032 | 0.1016 |
| | (-1.01) | (-0.31) | (-1.08) | (-0.30) | (0.563) | (1.224) | (0.509) | (1.130) |
| Leverage | 0.0352 | 0.1199 | 0.0466* | 0.3069 | 0.0293 | -0.0332 | 0.0475* | 0.2538 |
| | (1.47) | (0.35) | (1.85) | (0.90) | (1.138) | (-0.093) | (1.860) | (0.724) |
| ROE | -0.0616 | -1.7570*** | -0.0528 | -1.5986*** | -0.0679 | -1.9806** | -0.0386 | -1.5093* |
| | (-1.55) | (-2.77) | (-1.32) | (-2.61) | (-1.359) | (-2.414) | (-0.788) | (-1.845) |
| Big4 | 0.0149 | 0.4057 | 0.0143 | 0.3439 | 0.0176 | 0.4260 | 0.0110 | 0.3193 |
| | (0.67) | (1.44) | (0.66) | (1.28) | (0.631) | (1.214) | (0.413) | (0.942) |
| AC_Factor | -0.0119 | -0.1874 | -0.0179 | -0.2959* | -0.0124 | -0.2020 | -0.0243** | -0.3919** |
| | (-1.08) | (-1.19) | (-1.54) | (-1.93) | (-1.055) | (-1.237) | (-2.106) | (-2.433) |
| Firm_CG | 0.1356*** | 1.6832*** | 0.0410 | 0.9865** | 0.1159*** | 1.2730** | 0.0691* | 0.7129 |
| | (4.12) | (3.63) | (0.77) | (2.10) | (3.206) | (2.529) | (1.899) | (1.402) |
| Family_Dir | -0.0532*** | -0.6374*** | -0.0433*** | -0.6416*** | -0.0500** | -0.5738** | -0.0441** | -0.5018* |
| | (-3.29) | (-2.77) | (-2.84) | (-2.81) | (-2.571) | (-2.077) | (-2.311) | (-1.861) |
| Gov_Dir | 0.0167 | 0.0025 | 0.0224 | 0.0470 | 0.0118 | -0.0624 | 0.0183 | 0.0339 |
| | (0.96) | (0.01) | (1.33) | (0.20) | (0.664) | (-0.253) | (1.056) | (0.141) |
| Year FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Method FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| N | 506 | 506 | 506 | 506 | 492 | 492 | 492 | 492 |
| Adj. R-sq | 65.5% | 57.1% | 65.3% | 58.3% | 0.649 | 0.574 | 0.661 | 0.588 |

I use three firm-specific characteristics as instrumental variables (board size, board qualification, and firm level risk). The use of board size as an instrument is justified on the basis that more directors on the board provides firms with necessary skills, strength and diversity of expertise to form different board sub-committees. Carson (2002) finds that board size is one of the main determinants of voluntary formation of audit, remuneration and nomination committees. Thus, I expect that board size is also positively associated with the formation and functioning of a separate RC. I also use board qualification (dummy variable coded as 1 if at least one of the directors has academic or professional qualification in accounting and finance) as instrumental variable. Certo (2003) suggests that a board with a qualified director has an incentive to form a specialised committee (e.g., RC). Finally, motivated by Tao and Hutchinson (2013) I use firm level risk (Beta) as an instrumental variable. They argue and find that firms experiencing increasing levels of risk require a RC to manage and monitor risk to ensure a positive association between risk and performance.

First-stage regression results in Table 4.10, Panel A show that coefficients on the instrumental variables are significant, suggesting that the RC is positively associated with board size, qualification and firm level risk. The estimated coefficients in Panel B of Table 4.10 (Model 1 to 4) of the association between RC_D and market risk disclosures (*EMRD* and *QMRD)* (β= 0.3930 and 5.442 respectively and both at $p<.001$) in the 2SLS regression suggest that the positive and significant relationship between RC_D (and Factor_RC) and market risk disclosure (both *EMRD* and *QMRD*) remains robust even after accounting for the endogenous relation between them. Moreover, the coefficients between RC_Factor and market risk disclosures (*EMRD* and *QMRD)* are also positive (β= 0.1478 and 2.046 respectively) and significant (at $p<.001$).

In support of the theoretical connection of using the instruments, I also conduct Under-Identification; Hansen's Over-Identifying restrictions and Hausman endogeneity tests.

The Under-Identification test results (LM statistic) reveal that the excluded instruments are "relevant". The Weak-instrument test results suggest that excluded instruments are correlated with the endogenous regressors because the Cragg-Donald Wald F statistic is greater than Stock and Yogo (2002) critical value. Results from the Hansen test of Over-Identifying restrictions do not reject the null hypothesis (p-value>.10), suggesting that instruments are uncorrelated with the error term but are correctly excluded from the 2nd-stage regression, which reflects the validity of the instruments used for 2SLS. Finally, Hausman (1978) test strongly rejects (p<.01) the exogeneity of RC, suggesting that 2SLS estimates are preferable to the OLS estimate.

## 5. CHAPTER SUMMARY

This study provides evidence on whether the formation of a separate risk committee (RC) can improve the extent and quality of market risk disclosures of financial firms in GCC countries. In this study, I posit that the formation of a separate RC provides firms with sufficient skills, time, and dedication to enhance the monitoring and management of risk, which is likely to be reflected in the level of market risk disclosures. The results reveal that the extent and quality of market risk disclosures are significantly higher for firms with a separate RC. Moreover, I find that RC characteristics (e.g., RC qualifications and size) are also significantly associated with market risk disclosures. Additional analysis shows that the RC has an important role to play in the market risk disclosures of mature stage firms. These results remain unaffected even after taking care of the endogeneity concern.

Overall, empirical evidence contributes to the growing body of governance and disclosure literature. The findings strongly support the formation of a separate RC as a governance mechanism to protect shareholders' interests. The results also justify the recent endeavour of financial firms to form a separate RC to enhance risk monitoring, management,

and reporting. My study also extends prior studies by empirically showing that the RC in mature stage firms plays a significant role in the extent and quality of market risk disclosures.

**Table 4.10: Endogeneity Test**

| **Explanatory Variable** | **EMRD** | **QMRD** | **EMRD** | **QMRD** |
|---|---|---|---|---|
| **Panel A: First-Stage Regressions** | | | | |
| **Instruments** | **Model-1** | **Model-2** | **Model-3** | **Model-4** |
| Board_Size | 0.0191* | 0.0191* | - | - |
| | (1.78) | (1.78) | - | - |
| Board_Qualification | 0.3954*** | 0.3954*** | 1.258*** | 1.258*** |
| | (7.00) | (7.00) | (8.29) | (8.29) |
| Beta | - | - | 0.1735* | .1735* |
| | - | - | (1.94) | (1.94) |
| **Unreported Control Variables Included in Regression** | | | | |
| All Variables in Main Specification | Yes | Yes | Yes | Yes |
| Year FX | Yes | Yes | Yes | Yes |
| Industry FX | Yes | Yes | Yes | Yes |
| Country FX | Yes | Yes | Yes | Yes |
| Method FX | Yes | Yes | Yes | Yes |
| N | 628 | 628 | 674 | 674 |
| adj. R-sq-Concentrated | 61.4% | 61.4% | 44.6% | 44.6% |
| **Under Identification test** | | | | |
| Kleibergen-Paap rk LM statistic | 21.151 | 21.151 | 24.074 | 24.074 |
| P-value | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Weak Identification test** | | | | |
| Kleibergen-Paap rk Wald F statistic | 25.683 | 25.683 | 38.479 | 38.479 |
| Stock-Yogo (2005) critical value | 19.93 | 19.93 | 19.93 | 19.93 |
| **Over Identification test** | | | | |
| Hansen J statistic | 0.769 | 0.769 | 3.219 | 1.683 |
| p-value | 0.3804 | 0.3804 | 0.0728 | 0.1946 |
| **Panel B: Second-Stage Regressions** | | | | |
| **Explanatory Variable** | | | | |
| **Potentially Endogenous Instrumented Variable** | | | | |
| **RC_D** | **0.3930*** ** | **5.442*** ** | | |
| | **(3.52)** | **(3.53)** | | |
| **RC_Factor** | | | **0.1478*** ** | **2.046*** ** |
| | | | **(4.77)** | **(4.84)** |
| **Unreported Control Variables Included in Regression** | | | | |
| All Variables in Main Specification | Yes | Yes | Yes | Yes |
| Year FX | Yes | Yes | Yes | Yes |
| Industry FX | Yes | Yes | Yes | Yes |
| Country FX | Yes | Yes | Yes | Yes |
| Method FX | Yes | Yes | Yes | Yes |
| N | 628 | 628 | 674 | 674 |
| **Hausman Test for the Effect of RC_D & RC_Factor (Coefficient 2SLS = Coefficient OLS)** | | | | |
| Cluster-robust F-statistic | 8.001 | 8.294 | 12.579 | 11.847 |
| p-value | 0.0047 | 0.0040 | 0.0004 | 0.0006 |

*Notes: EMRD* is a proxy for the extent of market risk disclosures; *QMRD* is a proxy for quality of market risk disclosures; *RC_D* is a dummy variable that takes on the value of 1 if the firm has dedicated risk committee, 0 otherwise; *RC_Factor* is Eigenvalue obtain from three RC characteristics; *RC_Size* is the number of directors in RC; Board_Size is the number of director in the board; Board_Qualification is a dummy variable that takes a

value of 1 if at least one of the directors in the board holds accounting/finance academic and professional qualification; Beta represents systematic risk which is calculated over 12 months by regressing the share price against the respective market index.

# CHAPTER 5

# DISCRETION IN MANDATORY RISK DISCLOSURES AND INVESTMENT EFFICIENCY

## 1. INTRODUCTION

In this paper, I investigate the effect of discretion in mandatory risk disclosures on investment efficiency[86] of financial firms belonging to six emerging markets in the Gulf Cooperation Council (GCC) region. Specifically, I examine whether discretion in mandatory market risk disclosures reduces agency related issues stemming from under- and over-investment. I also investigate whether the presence of both voluntary disclosure and discretion in mandatory risk disclosures improves firms' investment efficiency.

This study is motivated by the desire of accounting policy makers and regulators for a common accounting standard. The adoption of International Financial Reporting Standards (IFRS) enhances transparency of financial risk disclosures and the accuracy of risk management information (Li 2010). Under IFRS, firms have some degree of discretion in their communication of financial information. For instance, IFRS mandate disclosure of prior-period accounting figures while earnings forecasts by management remain voluntary in nature. Whilst disclosure of aggregate accounting numbers is mandatory, decomposition of these amounts is voluntary (Einhorn 2005). Moreover, discretion in mandatory risk disclosures increases diversity in financial reporting and improves the precision of risk information, which can be used by stakeholders to make more informed investment decisions. Thus, I posit that discretion in mandatory risk disclosure has implications for investment efficiency through reduction in information asymmetry and agency problems. Further, Einhorn (2005) posit that discretion in mandatory disclosure occurs when managers possess

[86] Investment efficiency refers to the propensity of a firm to undertake all the projects with only positive NPV. For this study, I define investment efficiency as the reduction of both under-investment and over-investment.

quality information relevant for investors. This will reduce the requirement for management to voluntarily disclose information that may be subjective in nature or lacking in credibility (Gigler 1994). The provision of both discretion in mandatory disclosure and credible voluntarily disclosed information (e.g. release of good news) will reduce information asymmetry and improve investment efficiency (Gigler 1994).

Despite the potential effect that mandatory risk disclosure may reduce problems arising from information asymmetry, there has been comparatively little research on information asymmetry in the context of developing and emerging economies such as the GCC. In recent years, there has been increasing interest by international investors in the GCC markets which provide tax haven opportunities and strong return in capital markets (Bley and Saad 2012; Ariss et al. 2011; Bolbol and Omran 2005). The institutional settings and regulations in the GCC differ from that of typical well-established developed capital markets. The existence of a high level of ownership concentration may constrain dissemination of risk related information in these markets (Al-Yahyaee et al. 2011). Further, lack of credible media and lower investor protection in GCC markets makes financial information the primary source of the firm's overall information set to be utilized by investors for investment decision making (Al-Yahyaee et al. 2011; Abu-Nassar and Rutherford 1996). Given this lower level of informational environment, whether discretion in mandatory disclosures limits the opportunistic behaviour of the management in emerging markets such as the GGC has not yet been investigated. Given the economic and political importance of the GCC, the importance of the financial sector in those countries, and the interplay between mandatory risk reporting, voluntary disclosure and investment efficiency in determining business decisions, it is important to gain an understanding of the relationship between the nature and benefits of discretion in mandatory financial risk information.

## 2. THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

### 2.1 Discretion in Mandatory in Market Risk Disclosure: Theory

It is well documented that an increase in disclosure quality enhances firm value (Ostberg 2006) through the reduction of information asymmetry and agency problems (Jensen and Meckling 1976; Myers and Majluf 1984). One of the major perspectives of voluntary disclosure stems from the notion that managers possess superior information about the profitability and value of the firm compared to that of outside investors. Admati and Pfleiderer (2000) and Boot and Thakor (2001) contend that the role of mandatory disclosure is important when information asymmetry between firms and investors reduces firm's value. Fishman and Hagerty (1995) show that in an analytical setting in which agents discloses all information, imposing mandatory disclosure improves the informativeness of reporting media. In this regard, Ostberg (2006) also finds that mandatory disclosure offers an advantage over voluntary disclosure through the reduction in expropriation costs and improvement in investment efficiency, while the absence of mandatory disclosure is disadvantageous to investors. Ostberg (2006) also suggests that stringent disclosure is undesirable as it alleviates the expropriation problem (i.e. moral hazard) but exacerbates a debt-overhang problem. Moreover, Einhorn (2005) posits that discretion in firms' disclosure strategies is influenced by mandatory disclosure requirements. He finds that mandatory disclosure has a significant impact on voluntary disclosure strategies. Firms reduce voluntary disclosure when there is more discretion in mandatory disclosure (Einhorn 2005).

Jorgensen and Kirschenheiter (2003) show that firms' which voluntarily disclose risk information maintain a higher share price than those that don't disclose risk information. Moreover, imposition of mandatory disclosure of risk information lowers *ex-ante* share prices. Based on Einhorn (2005), Jorgensen and Kirschenheiter (2003) and Ostberg (2006) studies, I develop a discretion in mandatory market risk index that captures market risk

information available in annual reports (see *section 4.2.2*). I posit that, in conjunction with prior studies (Jorion 2002a; Rajgopal 1999; Perignon and Smith 2010a) that market risk disclosures are informative to market participants.

## 2.2 Investment Efficiency: Theory

An investment decision is the most important decision taken by the manager and hence, it continues to be a key research area in accounting and finance (Harvey et al. 2004; McConnell and Servaes 1995). Theoretically, firms continuously invest in net present value projects at a positive rate of return, until the marginal benefit of investment equals the marginal cost (Chen et al. 2011c). Prior studies (e.g., Jensen and Meckling 1976; Jensen 1986; Myers 1977; Myers and Majluf 1984; Morgado and Pindado 2003) show that capital-market imperfections, such as informational asymmetry and agency problems arising from interactions between shareholders, debtholders, and management may lead managers to take inefficient investment decisions leading to either underinvestment or overinvestment. The theory of 'underinvestment' posits that equity-value maximizing managers may forgo low-risk projects with a positive net present value (NPV) when the investment is financed by shareholders. This is because equity holders bear the costs of investment while a large share of the benefits flow to the bondholders. Thus, equity-value maximizing managers pursue riskier projects that can provide greater benefits for shareholders, whereas if large losses occur, these will be passed on to the bondholders (Jensen and Meckling 1976). On the other hand, 'overinvestment' arises from the misalignment of the interests of managers and shareholders. In the presence of free cash flows, managers have a propensity to expand the scale of the firm even if that means undertaking negative NPV investment projects and reducing shareholder value (Aivazian et al. 2005).

## 2.3 Hypothesis Development

Firm specific risk information is fundamental to investment decisions (Abraham and Cox 2007). Prior studies provide evidence on the informativeness of mandatory market risk disclosures. For example, Jorion (2002) examine the association between stock price sensitivity and foreign currency risk exposures of multinational firms. He finds that stock price sensitivity to U.S. dollar foreign exchange is higher for a firm with more extensive foreign operations.[87] Investors consider risk level relative to their own or other clients risk for their investment decision (Markowitz 1991). Linsley and Shrives (2006) suggest that risk disclosure motivates the suppliers of capital to remove a part of the risk premium to compensate for uncertainty of the firm's risk position, thereby reducing the cost of capital (Solomon et al. 2000; Jorgensen and Kirschenheiter 2003). Rajgopal (1999) observes that even in the presence of mandatory disclosure there are major variations and deficits in firm level risk reporting. Indeed, this variation is driven from the nature of risk reporting such as its subjectivity and uncertainties in future earnings (Dobler 2008). Therefore, discretion allowed under mandatory risk disclosures have implication on firm's investment decision (Admati and Pfleiderer 2000).

In a perfect market, firms depend on internal funding for their investment (e.g., Modigliani and Miller 1958) and all positive net present value projects should be financed internally (Biddle and Hilary 2006). External funding for implementing net present value projects has two main impediments: moral hazard (Ostberg 2006) and adverse selection (Hoshi et al. 1991). Moral hazard suggests that managers work to maximize their own interests (Fama and Jensen 1985); hence they over-invest the firms' capital for empire building by not choosing the projects that maximize the stockholders' benefits (Biddle et al.

[87] Furthermore, Rajgopal (1999) finds that oil and gas firms' market risk disclosures (*Tab* and *Sen* Formats) are positively associated with firms' stock returns. Ahmed et al. (2004) incorporate a Tabular (*Tab*) proxy for commercial banks' maturity gap disclosures. They find that Tabular (*Tab*) disclosure could predict the banks' net interest income.

2009). Moreover, adverse selection theory posits that managers, as insiders, possess superior information and they try to sell stocks at the best time to avail higher price (Biddle et al. 2009). If managers are successful in this process, they over-invest the proceeds. However, investors may recognise managers' strategy and ration their capital, which consequently increase the cost of capital. If the managers reject that discounted price, despite the presence of positive net present value projects, they under-invest the firm's capital (Myers and Majluf 1984).

The role of risk related information is highly important in decision making. Jorgensen and Kirschenheiter (2003), for example, suggest that firm has less risk premium if managers disclose risk exposure. If firms disclose quality risk information, as suggested by Einhorn (2005), through discretion in mandatory disclosures, informational signals become more precise and informative. Discretion in mandatory discloses reduces the likelihood of impairment of information flows, uncertainty of future earnings and improve the precision and/or quality of information, and thereby enhance corporate transparency. Thus, I expect that if firms disclose more precise market risk information relating to their exposures, this improves investment efficiency by reducing the information asymmetry and moral hazard. Based on this, I hypothesize that:

*H1a: All else being equal, discretion in market risk disclosures are negatively associated with under -investment.*

*H1b: All else being equal, discretion in market risk disclosures are negatively associated with over-investment.*

Discretion in mandatory disclosure may allow managers to resort to voluntary disclosure if needed. When managers believe that discretion in mandatory disclosure is not sufficient for investors, they may voluntarily disclose risk exposure as additional information for investor (Graham et al. 2005; Healy and Palepu 2001; Popova et al. 2013).

The coexistence of discretion in mandatory disclosure and voluntary disclosures provide investors with more information about the projects and firm's private signals, compared to non-disclosed or full disclosure (Einhorn 2005; Ostberg 2006). Therefore, this coexistence alleviates firm's distorted disclosure incentive. In this regard, Gigler (1994) asserts that firms voluntarily disclose their private information to increase the credibility of mandatory disclosure[88], which improves investment efficiency of the firm by reducing information risk.[89] Thus, existence of both voluntary disclosure and discretions in mandatory market risk disclosures offer managers with alternative means to design disclosure to reduce the cost of disclosure. Therefore, coexistence of discretion in mandatory disclosure and voluntary disclosure provides investors with projects specific information the and encourage firms to disclose precise firm specific risk exposure information, which eventually alleviate agency problems and information risk, and thus lead to investment efficiency of the firm. I hypothesize that:

*H2a: All else being equal, the existence of both voluntary and discretion in mandatory market risk disclosures significantly reduces firm level under-investment.*

*H2b: All else being equal, the existence of both voluntary and discretion in mandatory market risk disclosures significantly reduces firm level over-investment.*

## 3. RESEARCH DESIGN AND MEASUREMENT of VARIABLES

### 3.1 Dependent Variable: Proxy for Investment Efficiency

I investigate how discretion in market risk disclosures of current year affects the investment efficiency in the subsequent year. I measure investment efficiency based on two

[88] The model of Gigler (1994) assumes "a manager wants to overstate profitability to the capital market in the absence of verification. But, since voluntary disclosures are unaudited and firms can lie, credibility becomes an issue. And when disclosures are not believed, they are ignored. So, there is no reason for a firm to make a voluntary disclosure which is not credible" p.225.

[89] On the other side, Dye (1986) finds a positive assocaiton between mandatory and voluntary disclosure are complementary. Here, I study the implication of the existence of both voluntary and discretion in mandatory risk disclosures on investment efficiency.

approaches. In my first approach, I use the average of cash and leverage to rank firms on their likelihood of over- and under-investment. Jensen (1986) and Blanchard et al. (1994) assert that a firm with a higher free cash balance is likely to over-invest that cash, while a firm with more leverage is more likely to under-invest by giving up positive net present value projects (Myers 1977). In the second approach I use residuals from parsimonious regression models to calculate residuals from investment and revenue change. Then I regress the residuals with the main independent and control variables (Biddle et al. 2009).

### 3.2 Independent Variable

**Market Risk Disclosures**

I construct a disclosure index based on risk disclosure forms (qualitative and quantitative) and risk reporting requirements (mandatory and voluntary). The qualitative section of the index comprises a total of 14 mandatory and voluntarily disclosure items relating to VaR and Sen. The quantitative section of the index covers five facets of VaR disclosures ((such as: VaR characteristics (4 items), summary VaR statistics (5 items), inter-temporal comparison (1 item), back testing (2 items), and Daily VaR Figures (2 points)) and 3 facets of Sen disclosures (such as: Sen Characteristics (4 items), Summary Sen Statistics (5 items), and Inter-temporal Comparison(4 points)). Consistent with Perignon and Smith (2010b), I allocate equal weight to all disclosure items.[90] The disclosure index is provided as *Appendix A*. I closely follow prior studies (e.g., Hirtle 2007; Perignon and Smith 2010a), and Banking Supervision survey of Basel Committee (2001, 2002, 2003) in selecting the index items.

[90] Perignon and Smith (2010a) and Hooks and Staden, 2011 find the correlation between the first principle components and (weighted index) and unweighted index of VaR disclosure index significant. For instance, Perignon and Smith (2010a) find the correction is significant at 95% (Pearson correlation: 95.25; Spearman correlation: 95.34). Thus I expected that my results are not driven by my choice of weighting scheme of index.

Prior literature on market risk disclosures tend to use a single risk exposure (e.g., interest rates - Ahmed et al. 2004) or they employ one market risk format (e.g., Tabular format - Rajgopal 1999) or apply single market risk disclosure format (e.g., Value-at-Risk (VaR) Jorion 2002a). However, these studies provide only a partial picture of market risk disclosures. I avoid these limitations by incorporating all risk exposures (e.g., interest rate, foreign currency risk and equity price risk), reporting effects (e.g., cash flow, fair value, earnings), and diverse market risk formats (Sensitivity Analysis, VaR and Tabular). I also ensure that the index to captures firms' discretion in mandatory market risk disclosure. In the GCC, market risk disclosures are mandatory under IFRS 7. However, disclosure relating to the type, format and other specific risk characteristics is discretionary in nature.

**Market Risk Disclosures: DMRD1**

Proxy for mandatory market risk disclosures (DMRD1) explicitly takes into account both forms (qualitative and quantitative) and number of market risk exposures (e.g. interest rate risk, foreign currency risk and equity risk) disclosed by the firms in annual report. The index is calculated as:

$$\boldsymbol{DMRD1} = \sum_{\mathbf{t=1}}^{\boldsymbol{n_{j1=14}}} \boldsymbol{Qulitative\_Items\ X_{ij}} + \sum_{\mathbf{t=1}}^{\boldsymbol{n_{j2=14(3)+13(3)}}} \frac{\boldsymbol{Quanttitative\_Items\ X_{ij}}}{\boldsymbol{No.of\ market\ risk\ exposure}}$$

*see Eq. (1)*

Xij = 1 if $i^{th}$ item is disclosed for $j^{th}$ firm

nj1 = total score (nj1 ≤ 14) from qualitative disclosure for $j^{th}$ firm

nj2 = total score from quantitative disclosure for $j^{th}$ firm. For VaR format score = number of quantitative risk disclosure x maximum number of risk exposures disclosed. Same process is applied for Sen format. Then, total score from quantitative risk disclosure is calculated as sum of score from VaR and Sen format scaled by number of market risk

exposures. Thus, total value for DMRD1 is the sum of total qualitative and quantitative risk disclosures.

**Market Risk Disclosures: DMRD2**

My second proxy for market risk disclosures (DMRD2) is calculated based on total score obtained from both qualitative and quantitative form of disclosure. In calculating the qualitative and quantitative score, I scale both forms of disclosure by their maximum expected score, which is as follows:

$$\boldsymbol{DMRD2 = \sum_{t=1}^{n_{i1=14}} \frac{Qulitative\_Items\ X_{ij}}{n_{e,j}} + \sum_{t=1}^{n_{i2=14(3)+13(3)}} \frac{Quantitative\_Items\ X_{ij}}{n_{e,j}}}$$

*see Eq. (2)*

Xij = 1 if $i^{th}$ item is disclosed for $j^{th}$ firm
nej = Total maximum expected score for qualitative and quantitative disclosure for $j^{th}$ firm
nj1 = total score (nj1 ≤ 14) from qualitative disclosure for $j^{th}$ firm
nj2 = total score from quantitative disclosure for $j^{th}$ firm. In calculating the quantitative score I follow the same methodology as in DMRD1. So that 0≤ DMDR2 ≤ 2

Thus, DMRD2 captures the extent of disclosure by each firm in each year in the annual report.

**3.3 Control Variables**

I include both firm-specific and country-specific control variables that influence investment efficiency. Motivated by previous literature on investment efficiency (e.g. Biddle et al. 2009; Chen et al. 2013; Chen et al. 2011a) and risk disclosure (e.g. Abraham and Cox 2007), I control for firm's size (Log of total assets). Larger firms frequently act to preserve their reputation and avoid government's intervention (Watts and Zimmerman 1990). In GCC countries, large financial institutions are economically important and more visible (Al-Shammari et al. 2008). Following Lang and Lundholm (1993), I control for firm's

profitability using Return of Equity (*ROE*). Consistent with Biddle et al. (2009) and Biddle and Hilary (2006), I also include *Log Age* (log of the difference between current year and year of incorporation), *Slack* (total cash balance divided by total asset), and *Leverage* (total short and long term liabilities divided by total asset). Then I control for *Tab* (a dummy variable that takes value of 1 if firm discloses tabular format, 0 otherwise) to check whether tabular format complements or substitutes the market risk measure. Furthermore, following Skinner (1994), I proxy for voluntary disclosure (*VD*), (e.g. dummy variable takes a value of 1 if current earning is higher than previous year). Firms with good news are more likely to voluntary disclose their earning (Verrecchia 2001). However, firms with bad news are more likely to withhold private information (Akerlof 1970). In addition, I add *McapDev* (Market Capitalization divided by country level GDP in year t) as a country specific measure to control for country omitted variables. Biddle et al. (2009) and Chen and Chen (2012) shows that corporate governance has an impact on the firm level investment efficiency. Hence I use a firm level corporate governance index (which is composed of fifteen corporate governance attributes) as a control variable. Moreover, following Leuz et al. (2003) and Gul et al. (2013), I conduct factor analysis of country level governance (*Factor)* (which covers regulatory quality and control of corruption Kaufmann et al. (2009) and country investor protection index (which covers extent of director liability and ease of shareholders' suit against directors and managers (La Porta et al. 2000).

### 3.4 Empirical Models

To test H1, I use the following empirical model:

$$\boldsymbol{Investment}_{i,t,}[\boldsymbol{Under}] \boldsymbol{or} [\boldsymbol{Over}] = \boldsymbol{a_0} + \boldsymbol{a_1 DMRD}_{i,t-1} + \boldsymbol{a_2 ROE}_{i,t-1} + \boldsymbol{a_3 Slack}_{i,t-1} + \boldsymbol{a_4 Leverage}_{i,t-1} + \boldsymbol{a_5 Asset}_{i,t-1} \boldsymbol{a_6 Age}_{i,t-1} + \boldsymbol{a_7 Tab}_{i,t-1} + \boldsymbol{a_8 McapDev}_{i,t-1} + \boldsymbol{a_9 Firm\ CG}_{i,t-1} + \boldsymbol{a_{10} Factor}_{i,t-1} + \boldsymbol{Year\ Dummies} + \boldsymbol{e}_{i,t} \quad \textit{Eq. (5)}$$

I regress over-and under investment on market risk disclosures proxy (DMRD) and control variables. Over- and under investment is measured based on three models. In model 1, following on Chen et al. (2013) and Biddle et al. (2009), I rank firms into deciles based on firm' cash balance 0 (lowest) to 1 (highest), and leverage 1 (highest) to 0 (lowest). Then I obtain the average of both deciles for each firm's year. Firms with an average rank less than the median deciles is more likely to be in under-investment position, while firm with average rank higher than the median deciles is more likely to be in over-investment position. In model 2, second proxy is constructed based on Richardson (2006), Biddle and Hilary (2006), Biddle et al. (2009) and Chen et al. (2011a). I measure investment efficiency based on how it deviates from the expected investment level. Modigliani and Miller (1958) suggest that expected investment is function of growth opportunities. Hence, I use parsimonious regression models based on a relation between revenue growth and investment. Then I proxy under-investment firm with negative residuals $-e_{i,t}$ and over-investment firm with positive residuals $+e_{i,t}$. Thus, firm more close to zero is more efficient. The model is:

$$\boldsymbol{Investment}_{i,t} = \boldsymbol{a_0} + \boldsymbol{a_1 RevGrowth\%_{i,t-1}} + \boldsymbol{Year\ Dummies} + \boldsymbol{e_{i,t}} \qquad \textit{Eq.( 6)}$$

Where investment is measured as the sum of firm new investment (current) in Machinery, Equipment, Vehicles, Land, Building, (less Depreciation and Amortization, and sale of Net PPE). Total investment in each year is scaled by Total $Asset_{t-1}$. $DMRD_{i,t-1}$ is proxy for market risk disclosures. Consistent with (Biddle et al. 2009; Chen et al. 2011b), then I fixed the effect for years. In model 3, I regress (_- and +) $e_{i,t}$ obtained from parsimonious regression in equation 6 on the firm's sample that I attained from Model 1. Thus, I test whether firms with more likelihood to over-invest (under-invest) actually over-invest (under-invest) firms' fund.

### 3.5 Mandatory Market Risk Disclosure, Voluntary Earning Disclosure and Investment Efficiency

To test H2, I repeat the regressions for the existence of both discretion in market risk disclosures and voluntary disclosure (proxied by firm's good news in all the above models). Einhorn (2005) suggests that firms with more discretion in mandatory disclosure are more likely to limit voluntary disclosures. While, under the 'cheap-talk model' of Gigler (1994) firms may release quality voluntary (private) as a signal or expression of its mandatory disclosure. In all the models, I replace the main independent variable DMRD (1 & 2) by an interaction term (DMRD x VD) and (DMRD x NO_VD).

$$\boldsymbol{Investment}_{i,t,}[\boldsymbol{UnderInvet}] \,\&\, [\boldsymbol{OverInvest}] = \boldsymbol{a_0} + \boldsymbol{a_1 DMRD} * \boldsymbol{VD}_{i,t-1} + \boldsymbol{a_2}\, \boldsymbol{DMRD} * \boldsymbol{NON\_VD}_{i,t-1} + \boldsymbol{a_3}\, \boldsymbol{NON - VD}_{i,t-1} + \boldsymbol{a_4 Control\ variables}_{i,t-1} + \boldsymbol{Year\ Dummies} + \boldsymbol{e}_{i,t} \quad \textit{Eq. (7)}$$

In H2, I expect a negative association between over-and under investment and discretion in mandatory disclosure and voluntary disclosure.

## 4. EMPIRICAL RESULTS AND DISCUSSION

### 4.1 Descriptive Statistics

The sample is equally distributed throughout the years. Table 5.1 reports summary statistics for the variables included in the regression models. The mean (median) investment for the sample is 0.05 (.01) with a standard deviation of 0.15. These numbers are very similar to that obtained in prior studies. For example, Chen et al. (2011c) report mean investment of .05 and .06 for non-state owned and state owned firms respectively. The mean (median) for over-investment and under-investment models are 0.04 (0.01) and 0.05 (0.01) and these descriptive statistics are very similar to that of Chen et al. (2011a) that report mean over (under) investment of 0.12 (0.043). Moreover, the signed and unsigned mean (median) investment residuals are 0.000 (-0.04) and 0.066 (0.04) respectively. These statistics are consistent with that of Chen et al (2011) in which they report a signed investment residual

mean (median) of 0.002 (-0.023). The mean (median) DMRD1 and DMRD2 for the sample are 7.51 (7.5) and 0.55 (0.54) with a standard deviation of 3.75 and 0.28 respectively. I winsorize all continuous variables at the 1st and 99th percentiles to mitigate the effect of any potential outliers. Table 5.1 shows that there is a large dispersion among the sample firms in terms of control variables, and this dispersion indicates a considerable diversity in the sample. In the regression analysis, I use log transformations of both firm age and firm size. The descriptive statistics of other control variables are also generally in line with prior studies, which suggest that the sample is representative.

**Table 5.1: Descriptive Statistics**

| Variable | Mean | Standard Deviation | Minimum | 0.25 | Medium | 0.75 | Maximum |
|---|---|---|---|---|---|---|---|
| Investment | 0.05 | 0.13 | -0.20 | 0.00 | 0.01 | 0.02 | 1.49 |
| Investment (Under) | 0.05 | 0.16 | -0.10 | 0.01 | 0.01 | 0.03 | 1.49 |
| Investment (Over) | 0.04 | 0.11 | -0.20 | 0.00 | 0.01 | 0.02 | 0.92 |
| Residual (U &O) | 0.00 | 0.13 | -0.25 | -0.05 | -0.04 | -0.02 | 1.43 |
| Residual (Under) | -0.04 | 0.02 | -0.25 | -0.05 | -0.04 | -0.03 | 0.00 |
| Residual (Over) | 0.18 | 0.25 | 0.00 | 0.03 | 0.08 | 0.25 | 1.43 |
| \|Residual (U &O)\| | 0.06 | 0.12 | 0.00 | 0.03 | 0.04 | 0.05 | 1.43 |
| $DMRD1_{t-1}$ | 7.61 | 3.76 | 0.00 | 5.00 | 7.50 | 10.00 | 18.70 |
| $DMRD2_{t-1}$ | 0.56 | 0.28 | 0.00 | 0.37 | 0.55 | 0.74 | 1.39 |
| $ROE_{t-1}$ | 9.29 | 15.94 | -54.30 | 3.20 | 12.00 | 18.10 | 44.80 |
| $Slack_{t-1}$ | 0.12 | 0.12 | 0.00 | 0.03 | 0.09 | 0.18 | 0.65 |
| $Leverage_{t-1}$ | 0.65 | 0.30 | 0.00 | 0.47 | 0.70 | 0.85 | 2.39 |
| $Asset_{t-1(log)}$ | 7.10 | 1.99 | 2.64 | 5.49 | 6.90 | 8.52 | 11.26 |
| $Age_{t-1}$ | 2.98 | 0.76 | 0.00 | 2.56 | 3.26 | 3.50 | 4.04 |
| $Tab_{t-1}$ | 0.36 | 0.48 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| $McapDev_{t-1}$ | 75.89 | 37.84 | 24.60 | 36.90 | 78.40 | 96.20 | 163.90 |
| Firm $CG_{t-1}$ | 7.17 | 6.38 | 0.00 | 1.00 | 7.00 | 12.00 | 22.00 |
| $Factor_{t-1}$ | 0.04 | 1.02 | -1.47 | -0.94 | -0.11 | 1.21 | 1.78 |

The variable definitions are in *Appendix C*.

### 4.2 Correlation Analysis

Table 5.2 reports Pearson correlations of the variables included in regression analysis. As predicted, DMRD1 and DMRD2 are significantly negatively correlated (at 1% level) with the proxy for investment efficiency. In addition, the disclosure proxies (DMRD1 and DMRD2) are positively and significantly correlated with each other. Moreover, proxies for investment efficiency are also highly significantly correlated. Consistent with Biddle et al.

(2009) and Chen et al. (2011a), the proxy for investment efficiency is significantly negatively correlated with assets and age. Moreover, the correlation between discretion in mandatory market risk disclosures and VD is negative, which implies that voluntary disclosure complements the discretion in mandatory disclosure of firms. This view is also consistent with Einhorn (2005) that the presence of high discretion in mandatory disclosures reduces the firms' voluntarily disclosures.

## 4.3 Regression Analysis

### 4.3.1 Association between Mandatory Risk Disclosures (DMRD) and Investment Efficiency

Table 5.3 reports Ordinary Least Square (OLS) estimates of the association between discretion in mandatory risk disclosures and investment efficiency. I test whether investment efficiency of the firm depends systematically on DMRD1 through three models of investment efficiency. DMRD1 is a proxy for the discretion in mandatory risk disclosures, which captures the quality of market risk disclosures. Table 5.3 shows that the coefficient on DMRD1 is negative and statistically significant for all investment efficiency estimates. Specifically, regression results in model 1, model 2 and model 3 shows that discretion in mandatory market risk disclosures reduce firms' under (over) investment by 0.0060 (0.0045), 0.004(0.0012) and 0.0064 (0.0045) ($p<0.05$ level except for model 2). These results suggest that discretion in mandatory market risk disclosures reduce both underinvestment and overinvestment behaviour of the firm. These findings are consistent with the expectation in H1 that discretion in mandatory risk disclosures encourages firms to disclose more firm specific information, which reduces the information asymmetry and curbs managerial opportunistic behaviour in making value destroying investment decisions, which ultimately improves the investment efficiency of the firms. These results also reveal that profitability (ROA) and leverage is negatively associated with both under investment and

**Table 5.2: Pearson Correlation Matrix**

| | 1 | 2 | 3 | 4 | 5 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Investment | 1 | | | | | | | | | | | | | |
| $Residuals_{(U\&O)}$ | 0.9982*** | 1 | | | | | | | | | | | | |
| $DMRD1_{t-1}$ | -0.0601 | -0.2006*** | 1 | | | | | | | | | | | |
| $DMRD2_{t-1}$ | -0.1976*** | -0.1919*** | 0.9065*** | 1 | | | | | | | | | | |
| $Slack_{t-1}$ | 0.0069 | 0.0144 | -0.1132*** | -0.0651** | 1 | | | | | | | | | |
| $Assets_{t-1(log)}$ | -0.1378*** | -0.1913*** | 0.4996*** | 0.5273*** | -0.0637* | 1 | | | | | | | | |
| $Leverage_{t-1}$ | -0.1716*** | -0.1773*** | 0.2939*** | 0.2919*** | 0.0984** | 0.4607*** | 1 | | | | | | | |
| $Age_{t-1}$ | -0.0981** | -0.0428 | 0.2867*** | 0.2468*** | -0.2516*** | 0.2156*** | 0.0613 | 1 | | | | | | |
| $Tab_{t-1}$ | -0.1238*** | -0.1232*** | 0.3618*** | 0.3643*** | 0.0714* | 0.3749*** | 0.2488*** | 0.1235*** | 1 | | | | | |
| $VD_{t-1}$ | 0.0582 | 0.0352 | -0.0255 | 0.0121 | 0.0314 | 0.0172 | 0.0568 | 0.0036 | 0.0396 | 1 | | | | |
| $McapDev_{t-1}$ | 0.0951** | 0.0603 | -0.0208 | -0.0061 | 0.1117*** | 0.0991** | -0.0925** | 0.0249 | -0.0327 | 0.1150*** | 1 | | | |
| $ROE_{t-1}$ | -0.1597*** | -0.1769*** | 0.0409 | 0.0898 | 0.0573 | 0.1752*** | 0.0897** | 0.0681 | 0.1596*** | 0.1736*** | 0.0889** | 1 | | |
| Firm $CG_{t-1}$ | 0.0171 | 0.0133 | 0.1744*** | 0.2013*** | -0.0333 | 0.1844*** | 0.1746*** | -0.0533 | 0.1335*** | 0.0232 | -0.1768*** | 0.0414 | 1 | |
| $Factor_{t-1}$ | 0.0281 | 0.0177 | -0.0778* | -0.0778* | -0.0816* | -0.0790* | -0.0312 | 0.0436 | -0.0319 | -0.0099 | -0.0098 | -0.1650*** | -0.0647 | 1 |

*, **, and *** denote significance at 10%, 5% and 1% respectively (Two-tail).
The variable definitions are in Appendix A.

over-investment of the firm. In the regression models, I control for year effects. However, I do not include an industry fixed effect since the sample covers only the financial sector.

### 4.3.2 Existence of Voluntary Disclosure (VD), Mandatory Market Risk Disclosures (DMRD), and Investment Efficiency

Table 5.4 reports the joint impact of discretion in mandatory market risk disclosures and voluntary earning disclosures on investment efficiency. Firms with discretion in mandatory market risk disclosures are expected to have more voluntary disclosure when they have more good news to release. For this reason, I use growth in earnings as a proxy of good news. Firms that have discretion in mandatory market risk disclosures and do not have voluntary disclosure will enjoy comparatively less investment efficiency than firms with both types of disclosures. The reason for this is that firms with only mandatory market risk disclosures suffer from information asymmetry which does not exist with firms that have both types of disclosures.

Table 5.4 exhibits that the coefficient on interactions between voluntary disclosure (VD) and mandatory market risk disclosures (DMRD1) (i.e. VD x DMRD1) is negative and significant for both underinvestment and overinvestment in all the models. These results suggest that existence of both voluntary disclosure and discretion in mandatory disclosure have an economically significant effect in reducing over-and under investment, as compared to the provision of discretionary market risk disclosures alone. For example, the coefficients between the interaction term and under (over) investment in model 1of 5.4 is higher than the coefficient between discretion in mandatory disclosure alone and investment efficiency by 58% (57%). These results are consistent that of Gigler (1994) in that the presence of both voluntary disclosure and mandatory disclosure firms resort to voluntary disclosure more extensively to enhance the credibility of mandatory risk disclosures.

**Table 5.3: Association between Discretion in Mandatory Risk Disclosures (DMRD1) and Investment Efficiency**

| | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|
| | Under-Investment | Over-Investment | Under-Investment | Over-Investment | Under-Investment | Over-Investment |
| DMRD1t-1 | -0.0060** | -0.0045** | -0.0004 | -0.0127* | -0.0064** | -0.0045** |
| | (0.0028) | (0.0020) | (0.0003) | (0.0064) | (0.0028) | (0.0021) |
| $ROE_{t-1}$ | -0.0011 | -0.0046 | -0.0001** | -0.0028 | -0.0012 | -0.0019* |
| | (0.0007) | (0.0104) | (0.0001) | (0.0017) | (0.0007) | (0.0011) |
| $Slack_{t-1}$ | -0.2217 | -0.7333 | 0.0121* | 0.6280 | 0.2420 | 0.0452 |
| | (0.2088) | (1.5057) | (0.0067) | (0.4534) | (0.2135) | (0.0675) |
| $Leverage_{t-1}$ | -0.0998** | 1.8575** | 0.0040** | -0.2946*** | -0.1034** | -0.069 |
| | (0.0421) | (0.9019) | (0.0018) | (0.0872) | (0.0434) | (0.0523) |
| $Assets_{t-1}$ | -0.0035 | 0.3305** | 0.0002 | 0.0250 | -0.0037 | 0.0039 |
| | (0.0088) | (0.1335) | (0.0005) | (0.0196) | (0.0089) | (0.0057) |
| $Age_{t-1}$ | 0.0037 | 0.2449 | 0.0020** | -0.0192 | 0.0054 | 0.0127 |
| | (0.0276) | (0.1869) | (0.0009) | (0.0486) | (0.0278) | (0.0082) |
| Tabt-1 | 0.0017 | 1.0766*** | 0.0023* | -0.0069 | 0.0021 | -0.0068 |
| | (0.0300) | (0.3568) | (0.0014) | (0.1076) | (0.0308) | (0.0105) |
| McapDevt-1 | 0.0003 | -0.0004 | -0.0001** | 0.000 | 0.0003 | 0.0005** |
| | (0.0003) | (0.0072) | 0.0000 | (0.0008) | (0.0003) | (0.0002) |
| Firm CGt-1 | 0.0014 | 0.1442*** | 0.0002 | 0.0020 | 0.0015 | 0.0020** |
| | (0.0018) | (0.0072) | (0.0001) | (0.0038) | (0.0019) | (0.0009) |
| Factort-1 | 0.0119 | 0.1023 | -0.0002 | 0.0184 | 0.0130 | -0.0026 |
| | (0.0155) | (0.1534) | (0.0006) | (0.0275) | (0.0157) | (0.0065) |
| Year Dummy | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | 0.1293** | -0.1337 | -0.0479*** | 0.2628* | 0.0866 | -0.0327 |
| | (0.0617) | (1.2282) | (0.0053) | (0.1561) | (0.0605) | (0.0459) |
| N | 211 | 339 | 452 | 95 | 209 | 338 |
| Adj. R2 | 5.61% | 16.57% | 15.71% | 10.30% | 16.60% | 16.30% |

*, **, and *** denote significance at 10%, 5% and 1% respectively (Two-tail).
Robust p-values in brackets
The variable definitions are in Appendix C.

**Table 5.4: Association between Interaction of Voluntary Disclosure, Discretion in Mandatory Market Risk Disclosures (DMRD1) and Investment Efficiency**

| | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|
| | Under-Investment | Over-Investment | Under-Investment | Over-Investment | Under-Investment | Over-Investment |
| $VD_{t-1}$*$DMRD1t_{-1}$ | -0.0095** | -0.0071** | -0.010*** | -0.0070** | -0.0006** | -0.0182* |
| | (0.0037) | (0.0034) | (0.0038) | (0.0034) | (0.0003) | (0.0101) |
| NON-$VD_{t-1}$* $DMRD_{t-1}$ | 0.0042 | -0.0018 | 0.0041 | -0.0019 | -0.0001 | 0.0032 |
| | (0.0035) | (0.0020) | (0.0036) | (0.0020) | (0.0003) | (0.0109) |
| $VD_{t-1}$ | 0.1216** | 0.0629 | 0.1257** | 0.0598 | 0.0023 | 0.1756* |
| | (0.0491) | (0.0397) | (0.0504) | (0.0401) | (0.0039) | (0.1012) |
| $ROE_{t-1}$ | -0.0012 | -0.0021* | -0.0012* | -0.0021* | -0.0001** | -0.0031* |
| | (0.0007) | (0.0011) | (0.0007) | (0.0011) | (0.0001) | (0.0016) |
| $Slack_{t-1}$ | 0.2008 | 0.0644 | 0.2228 | 0.0619 | 0.0122* | 0.5861 |
| | (0.2028) | (0.0704) | (0.2066) | (0.0712) | (0.0066) | (0.4280) |
| $Leverage_{t-1}$ | -0.0931** | -0.0865* | -0.0970** | -0.0836 | 0.0042** | -0.328*** |
| | (0.0429) | (0.0517) | (0.0444) | (0.0535) | (0.0019) | (0.0939) |
| $Assets_{t-1}$ | -0.0051 | 0.0058 | -0.0054 | 0.0056 | 0.0002 | 0.0196 |
| | (0.0087) | (0.0061) | (0.0088) | (0.0062) | (0.0005) | (0.0205) |
| $Age_{t-1}$ | 0.0000 | 0.0139* | 0.0017 | 0.0141* | 0.0020** | -0.0202 |
| | (0.0281) | (0.0080) | (0.0282) | (0.0080) | (0.0009) | (0.0485) |
| $Tab_{t-1}$ | 0.0026 | -0.0074 | 0.0031 | -0.0079 | 0.0024* | -0.0037 |
| | (0.0300) | (0.0105) | (0.0306) | (0.0106) | (0.0014) | (0.1060) |
| $McapDev_{t-1}$ | 0.0003 | 0.0004* | 0.0003 | 0.0004* | -0.0001** | 0.0002 |
| | (0.0003) | (0.0002) | (0.0003) | (0.0002) | 0.0000 | (0.0008) |
| Firm $CG_{t-1}$ | 0.0012 | 0.0018** | 0.0013 | 0.0019** | 0.0002 | 0.0017 |
| | (0.0019) | (0.0009) | (0.0019) | (0.0009) | (0.0001) | (0.0037) |
| $Factor_{t-1}$ | 0.0145 | -0.0017 | 0.0158 | -0.0017 | -0.0001 | 0.0188 |
| | (0.0151) | (0.0063) | (0.0154) | (0.0064) | (0.0006) | (0.0265) |
| Year Dummy | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | 0.0582 | -0.0082 | 0.0133 | -0.0636 | -0.049*** | 0.1684 |
| | (0.0513) | (0.0438) | (0.0453) | (0.0488) | (0.0060) | (0.1496) |
| N | 211 | 339 | 209 | 338 | 452 | 95 |
| Adj. R2 | 7.02% | 11.44% | 7.37% | 11.30% | 16.67% | 16.44% |

*, **, and *** denote significance at 10%, 5% and 1% respectively (Two-tail).
Robust p-values in brackets
The variable definitions are in *Appendix C*

### 4.3.3 Sensitivity Analysis

As a robustness check, I conduct three additional tests. First, to address the concern that my results are not specific to the measurement of discretion in mandatory market risk disclosures, I construct a second market risk disclosures index (DMRD2) which considers the extent of disclosures. The results presented in Table 5.5 show that the main inference is unaffected even after different specification of mandatory market risk disclosures in model 1, model 2 and model 3 for both over (under) investment. The under (over) investment

regression coefficients in model 1, model 2 and model 3 are 0.0912(0.0894), 0.0059(0.1663), and 0.945(0.0531) at ($p<0.05$ level) except for model 2 at ($p<0.10$ level). Second, I test whether the results on the interaction between discretion in mandatory market risk disclosures and voluntary disclosure is affected by the alternative measure of discretion in mandatory market risk disclosures. Table 5.6 confirms that in all models my results are robust to alternative specification of discretion in mandatory market risk disclosure.

I also adopt an alternative measure of investment based of Richardson (2006). I find that my results are unaffected by the alternative measurement of Investment. Un-tabulated results show that the coefficients for the association between DMRD1 and under-(over) investment in the three models are -0.0072***, -0.0030***, -0.0102*** (-0.0075*, -0.0188**, -0.0096**).[91] Moreover, the coefficient for the association between DMRD2 and under-investment (over-investment) in three models are -0.1086***, -0.0416***, -0.1551*** (-0.0838; -0.2479**, -0.1150**). Furthermore, to mitigate the concern for potential serial dependence in the data, I follow Hoi et al. (2013) and estimate the average of the variables over the five-year sampling period. Then I use these average variables to re-run the regressions in main analysis. I find that my results are consistent with the main regressions results. Moreover, I replace a factor variable (Factort_1) with the decomposition of extent of disclosure liability, ease of shareholders' suit directors and managers, regulatory quality and control of corruption indexes and re-run the regressions. I find that the significance level and sign of the results remains unchanged.

[91] *** p<.01, ** p<.05, and p<.10

**Table 5.5: Sensitivity Analysis**

**Association between Discretion in Mandatory Market Risk Disclosures (DMRD2) and Investment Efficiency**

| | **Model 1** | | **Model 2** | | **Model 3** | |
|---|---|---|---|---|---|---|
| | Under-Investment | Over-Investment | Under-Investment | Over-Investment | Under-Investment | Over-Investment |
| DMRD2t-1 | -0.0912** | -0.0894** | -0.0059* | -0.1663* | -0.0945** | -0.0531** |
| | (0.0398) | (0.0398) | (0.0034) | (0.0868) | (0.0402) | (0.0268) |
| ROEt-1 | -0.0011 | -0.0011 | -0.0001** | -0.0027 | -0.0012 | -0.0019* |
| | (0.0007) | (0.0007) | (0.0001) | (0.0017) | (0.0007) | (0.0011) |
| Slackt-1 | 0.2224 | 0.2220 | 0.0120* | 0.6372 | 0.2429 | 0.0494 |
| | (0.2091) | (0.2080) | (0.0067) | (0.4424) | (0.2126) | (0.0677) |
| Leveraget-1 | -0.1000** | -0.0993** | 0.0042** | -0.294*** | -0.1030** | -0.0710 |
| | (0.0421) | (0.0418) | (0.0018) | (0.0875) | (0.0431) | (0.0526) |
| Assetst-1 | -0.0026 | -0.0029 | 0.0002 | 0.0250 | -0.0030 | 0.0038 |
| | (0.0090) | (0.0092) | (0.0005) | (0.0193) | (0.0093) | (0.0057) |
| Aget-1 | 0.004 | 0.0041 | 0.0020** | -0.0178 | 0.0059 | 0.0122 |
| | (0.0274) | (0.0273) | (0.0009) | (0.0485) | (0.0275) | (0.0082) |
| Tabt-1 | 0.0021 | 0.0018 | 0.0024* | -0.0079 | 0.0022 | -0.0069 |
| | (0.0299) | (0.0300) | (0.0014) | (0.1084) | (0.0307) | (0.0105) |
| McapDevt-1 | 0.0003 | 0.0003 | -0.0001* | -0.0001 | 0.0003 | 0.0005** |
| | (0.0003) | (0.0003) | 0.0000 | (0.0008) | (0.0003) | (0.0002) |
| Firm CGt-1 | 0.0014 | 0.0015 | 0.0002 | 0.0020 | 0.0016 | 0.0020** |
| | (0.0018) | (0.0018) | (0.0001) | (0.0038) | (0.0019) | (0.0009) |
| Factort-1 | 0.0110 | 0.0122 | -0.0001 | 0.0222 | 0.0133 | -0.0012 |
| | (0.0154) | (0.0154) | (0.0006) | (0.0273) | (0.0156) | (0.0065) |
| Year Dummy | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | 0.1279** | 0.0241 | -0.0481*** | 0.2610* | 0.0827 | -0.0341 |
| | (0.0613) | (0.0387) | (0.0053) | (0.1554) | (0.0596) | (0.0459) |
| N | 211 | 339 | 452 | 95 | 209 | 338 |
| Adj. R2 | 5.79% | 9.99% | 16.7% | 15.99% | 6.12% | 9.97% |

*, **, and *** denote significance at 10%, 5% and 1% respectively (Two-tail).

Robust *p*-values in brackets

The variable definitions are in Appendix A.

**Table 5.6: Sensitivity Analysis**

**Association between Interaction of Voluntary Disclosure and Discretion of Mandatory Risk Disclosure (DMRD2) and Investment Efficiency**

| | **Model 1** | | **Model 2** | | **Model 3** | |
|---|---|---|---|---|---|---|
| | Under-Investment | Over-Investment | Under-Investment | Over-Investment | Under-Investment | Over-Investment |
| VDt-1 * DMRD2t-1 | **-0.1431*** ** | **-0.0848*** | **-0.1509*** ** | **-0.0823*** | **-0.0098*** ** | **-0.2453*** |
| | (0.0536) | (0.0440) | (0.0545) | (0.0442) | (0.0046) | (0.1360) |
| NON-$VD_{t1}$*$DMRD2_{t-1}$ | 0.0460 | -0.0200 | 0.0451 | -0.0215 | -0.0019 | 0.044 |
| | (0.0437) | (0.0267) | (0.0441) | (0.0273) | (0.0042) | (0.1476) |
| VDt-1 | 0.1240** | 0.0581 | 0.1289** | 0.0551 | 0.0028 | 0.1742* |
| | (0.0482) | (0.0382) | (0.0496) | (0.0387) | (0.0039) | (0.1008) |
| ROEt-1 | -0.0012 | -0.0021* | -0.0012* | -0.0021* | -0.0001** | -0.0031* |
| | (0.0007) | (0.0011) | (0.0007) | (0.0011) | (0.0001) | (0.0016) |
| Slackt-1 | 0.2037 | 0.0665 | 0.2264 | 0.0641 | 0.0122* | 0.5885 |
| | (0.2033) | (0.0704) | (0.2071) | (0.0711) | (0.0066) | (0.4282) |
| Leveraget-1 | -0.0940** | -0.0868* | -0.0980** | -0.0842 | 0.0044** | -0.3289*** |
| | (0.0427) | (0.0519) | (0.0442) | (0.0536) | (0.0018) | (0.0941) |
| Assetst-1 | -0.0038 | 0.0056 | -0.0039 | 0.0054 | 0.0002 | 0.0195 |
| | (0.0088) | (0.0061) | (0.0089) | (0.0062) | (0.0005) | (0.0204) |
| Aget-1 | 0.0015 | 0.0133* | 0.0032 | 0.0136* | 0.0021** | -0.0194 |
| | (0.0278) | (0.0080) | (0.0278) | (0.0080) | (0.0010) | (0.0487) |
| Tabt-1 | 0.0025 | -0.0074 | 0.0029 | -0.0080 | 0.0025* | -0.0032 |
| | (0.0297) | (0.0105) | (0.0303) | (0.0106) | (0.0014) | (0.1062) |
| McapDevt-1 | 0.0003 | 0.0004* | 0.0003 | 0.0004* | -0.0001* | 0.0002 |
| | (0.0003) | (0.0002) | (0.0003) | (0.0002) | 0.0000 | (0.0008) |
| Firm CGt-1 | 0.0012 | 0.0018** | 0.0013 | 0.0018** | 0.0002 | 0.0017 |
| | (0.0019) | (0.0009) | (0.0019) | (0.0009) | (0.0001) | (0.0037) |
| Factort-1 | 0.0126 | -0.0014 | 0.0139 | -0.0014 | -0.0001 | 0.0191 |
| | (0.0149) | (0.0064) | (0.0152) | (0.0064) | (0.0006) | (0.0265) |
| Year Dummy | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | 0.0521 | -0.0079 | 0.0047 | -0.0631 | -0.049*** | 0.1665 |
| | (0.0514) | (0.0437) | (0.0450) | (0.0486) | (0.0060) | (0.1502) |
| N | 211 | 339 | 209 | 338 | 452 | 95 |
| Adj. R2 | 7.2% | 11.0% | 07.68% | 10.89% | 16.88% | 16.46% |

*, **, and *** denote significance at 10%, 5% and 1% respectively (Two-tail).
Robust *p*-values in brackets
The variable definitions are in *Appendix A.*

### 4.3.4 Potential Endogeneity between Mandatory Market Risk Disclosures and Investment Efficiency

It is possible that the proxy for market risk disclosures (DMRD1 and DMRD2) is endogenously determined along with investment efficiency. To address this concern, I conduct additional tests. Specifically, I select a set of variables that are assumed to be exogenous and use two-stages-least-squares (2SLS) to estimate coefficients in the all three regression models. The selection of instrumental variables is guided by Larcker and Rusticus

(2010) and Hail and Leuz (2006). I use the number of risk exposures, Big4 audit firm, firm growth, and inflation as my instrumental variables. The theoretical argument for the use of number of risk exposures as an instrumental variable is that the number of market risk exposures that firms' disclose in annual reports is correlated with discretion in market risk disclosures. Big four accounting firms (Big4) has an impact on the disclosure quality and compliance of the firm (Al-Shammari et al. 2008). Moreover, the use of growth (book to market ratio) in disclosure studies (e.g, Khurana et al. 2006) as an instrumental variable for disclosure motivates us to use this as an instrumental variable as well. It is well established that economy-wide variables are suitable as an instrument (Larcker and Rusticus 2010). Beck et al. (2006) find significant negative correlation between accuracy and transparency of disclosure and inflation rate, which also motivates in using inflation as an instrument.

I conduct weak instrument test, over-identification test and Durbin-Wu-Hausman test to ascertain the validity and appropriateness of instrumental variables estimation for all three models of investment efficiency. To assess whether weak instruments are a problem, I report partial F-statistics and partial R2. For weak instrument test if the F-statistic is low, this implies that the selected instruments are weak (For detail discussion see (Murray 2006). The reported F-statistics for four instruments (in Table 5.7) is higher than the benchmark suggested by Stock et al. (2002). I conduct an over-identification test (i.e., use of the number of instruments more than the number of endogenous regressor) to determine the appropriateness of the instruments. This test requires that at least one of the instruments be valid (Cameron and Pravin 2009). The reported results show that in all the models, the coefficients on at least two instruments are significant at the conventional level. Moreover, for the Hansen test the p-value for all the models is higher than 0.05 levels, which also justifies the appropriateness of the instruments. I also perform standard Durbin-Wu-Hausman test to justify the use of 2SLS rather than OLS results. For underinvestment (and

overinvestment), the Hausman test statistics 0.039, 0.25, 0.054 (0.002, 0.004 and 0.001) strongly rejects the exogeneity of discretion in mandatory market risk disclosures. Based on these results, I conclude that 2SLS estimate is preferable to the OLS estimate for both measures of discretion in mandatory market risk disclosures.

Table 5.7 shows that the coefficient terms in all three models of underinvestment and overinvestment capture the effect of discretion in mandatory risk disclosures which is significantly negatively associated with investment efficiency. This is consistent with my expectations as well as with the results from main analysis. Overall, 2SLS results are stronger than the results reported under OLS.

**4.3.4 Additional analysis:** In prior regression models, I controlled for country-specific effects including two variables which are $McapDev_{t-1}$ and $Factor_{t-1}$. As additional analysis I also alleviate these impacts, by replacing the country-specific factors and including country dummies for both desertion in market risk disclosure (DMRD1 and DMRD2) and investment efficiency's regressions. Un-tabulated results provide consistent evidence that discretion in risk reporting reduces the investment inefficiency in all three models.[92]

## 5. CHAPTER SUMMARY

I examine the impact of discretion in mandatory market risk disclosures on investment efficiency. I hypothesize that discretion in mandatory disclosure increases the flow of information, which alleviate adverse selection and moral hazard problem and thus improve the investment efficiency by reducing both over-investment and under-investment. I also expect that improvement in investment efficiency is more pronounced when firms incorporate private information production incentive (voluntary disclosure). Consistent with expectations, I find a negative and statistically significant association between discretion in

[92] Results of the additional analysis are available to the author upon reader request

mandatory market risk disclosures and over- (and under) investment. Moreover, when the existence of both voluntary disclosure and discretion in mandatory market risk disclosures are taken into account, the coefficients on over- and under- investment are negative and significant for all the models. This study contributes to investment efficiency and disclosure literature in several ways. My study contributes to disclosure literature by showing that discretion in mandatory disclosure provides investors with more firm specific information which improves investment efficiency by alleviating adverse selection and moral hazard problems. I also document that coexistence of discretion in mandatory risk disclosure and voluntary earning disclosures have an important implication for disclosure level and investment decision-making. Moreover, in this study, I focus on the relation between discretion in disclosure and investment efficiency in emerging markets which receive less attention in the prior studies. Finally, prior studies extensively investigate investment efficiency of non-financial firms; empirical evidence on investment efficiency of financial firms is scarce. I fill this gap in literature.

This study relies on a limited sample size since I collect data from annual reports of financial firms in the GCC. I control for the endogeneity by using 2SLS through providing instrumental variables. My finding suggests that an opportunity to undertake future research on mandatory market risk disclosures studies. For example, future research can be conducted to investigate the value relevance of discretion in mandatory risk disclosure. Future research can also explore the association of discretion in mandatory market risk disclose with cost of equity, stock price informativeness and firm specific stock crash risk.

## Table 5.7 Endogeneity Test – DMRD1

| | Model 1 | | | | Model 2 | | | | Model 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Under- Investment | | Over- Investment | | Under- Investment | | Over- Investment | | Under- Investment | | Over- Investment | |
| | 1th Stage | 2th Stage | 1th Stage | 2th Stage | 1th Stage | 2th Stage | 1th Stage | 2th Stage | 1th Stage | 2th Stage | 1th Stage | 2th Stage |
| $DMRD1_{t-1}$ | | -0.0230** | | -0.0138*** | | -0.0009** | | -0.0319*** | | -0.0239** | | -0.0140*** |
| | | (0.0107) | | (0.0041) | | (0.0005) | | (0.0104) | | (0.0110) | | (0.0042) |
| Variable Predetermined in main specification | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | -3.1839* | 0.1864** | 0.0266 | 0.0455 | -2.293** | -0.0535*** | 5.366*** | 0.6016*** | -4.0033* | 0.0332 | (0.0202) | -0.0217 |
| | (-1.9055) | (0.0872) | (0.0388) | (0.0464) | (1.0241) | (0.0051) | (2.0090) | (0.2277) | (2.1345) | (0.0639) | (1.5416) | (0.0589) |
| N | 193 | 193 | 283 | 283 | 389 | 389 | 85 | 85 | 192 | 192 | 282 | 282 |
| | First stage: IVs | | First stage: IVs | | First stage: IVs | | First stage: IVs | | First stage: IVs | | First stage: IVs | |
| Variables | Coeff. | St. Err | Coeff | St. Err | Coeff | St. Err | Coeff | St. Err | Coeff | St. Err | Coeff | St. Err |
| $No\_ Risk_{t-1}$ | 1.231*** | (0.2647) | 1.647*** | (0.1690) | 1.414*** | (0.1524) | 1.467*** | (0.3791) | 1.218*** | (0.2633) | 1.636*** | (0.1695) |
| $Audit4_{t-1}$ | 2.134** | (0.7891) | -0.215 | (0.3911) | 0.868* | (0.4787) | 1.7026* | (0.9191) | 2.153*** | (0.7809) | -0.199 | (0.3892) |
| $Growth_{t-1}$ | -0.041 | (0.1526) | -0.110 | (0.0697) | 0.048 | (0.1032) | -0.125 | (0.0801) | 0.042 | (0.1510) | -0.112 | (0.0696) |
| $Log(Inflation)_{t-1}$ | -0.683* | (0.4070) | -0.516* | (0.3059) | -0.446* | (0.2676) | 1.747** | (0.7173) | -0.672* | (0.4037) | -0.519* | (0.3039) |
| 1-Partial $R^2$ (F stat.) | $R^{2:}$0.24\| F: 9.32 | | $R^{2:}$ 0.314 \| F:24 | | $R^{2:}$ 0.25 \| F: 3.87 | | $R^{2:}$ 0.46 \| F:14.91 | | $R^{2:}$ 0.21 \| F:8.64 | | $R^{2:}$ 0.31\| F: 24.64 | |
| 2-Over-identfication | 1.22 (p = 0.7491) | | 2.15 (p= 0.541) | | 2.59 (p = 0.47) | | 6.75 (p = 0.08) | | 1.195 (p = 0.75) | | 2.09 (p = 0.55) | |
| 3-Endogenous Test | 3.63 (p= 0.039) | | 9.34 (p= 0.002) | | 1.32 (p = 0.25) | | 8.64 (p = 0.004) | | 3.75 (p = 0.054) | | 10.69 (p = 0.001) | |

## DMRD2

| | Model 1 | | | | Model 2 | | | | Model 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Under- Investment | | Over- Investment | | Under- Investment | | Over- Investment | | Under- Investment | | Over- Investment | |
| | 1th Stage | 2th Stage | 1th Stage | 2th Stage | 1th Stage | 2th Stage | 1th Stage | 2th Stage | 1th Stage | 2th Stage | 1th Stage | 2th Stage |
| $DMRD2_{t-1}$ | | -0.2411** | | -0.2383** | | -0.0112** | | -0.4115*** | | -0.2484** | | -0.1764*** |
| | | (0.1015) | | (0.0999) | | (0.0056) | | (0.1359) | | (0.1033) | | (0.0530) |
| Variable Predetermined in main specification | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | -0.233* | 0.1862** | -0.0147 | 0.0384 | -0.164** | -0.053*** | 0.3947** | 0.5851*** | -0.298** | 0.0419 | -0.0309 | -0.0307 |
| | 0.1319 | (0.0852) | (0.0900) | (0.0458) | 0.0723 | (0.0051) | 0.1487 | (0.2255) | 0.1466 | (0.0582) | 0.1145 | (0.0596) |
| N | 193 | 193 | 283 | 283 | 389 | 389 | 85 | 85 | 192 | 192 | 282 | 282 |
| | First stage: IVs | | First stage: IVs | | First stage: IVs | | First stage: IVs | | First stage: IVs | | First stage: IVs | |
| Variables | Coeff | St. Err | Coeff | St. Err | Coeff | St. Err | Coeff | St. Err | Coeff | St. Err | Coeff | St. Err |
| $No.\_Risk_{t-1}$ | 0.107*** | (0.0165) | 0.128*** | (0.0124) | 0.115*** | (0.0108) | 0.110** | (0.0281) | 0.106*** | (0.0164) | 0.127*** | (0.1695) |
| $Audit4_{t-1}$ | 0.126* | (0.0641) | -0.021 | (0.0295) | 0.058* | (0.0354) | 0.1267* | (0.0678) | 0.126** | (0.0634) | -0.018 | (0.3891) |
| $Growth_{t-1}$ | 0.001 | (0.0114) | -0.011** | (0.0045) | -0.002 | (0.0086) | -0.0103 | (0.0062) | 0.001 | (0.0113) | -0.011** | (0.0696) |
| $Log(Inflation)_{t-1}$ | -0.044 | (0.0298) | -0.047** | (0.0221) | -0.038** | (0.0196) | -0.131** | (0.0531) | -0.043 | (0.0295) | -0.047** | (0.3038) |
| Partial R2 (F stat.) | $R^2$:0.28\| F: 12.89 | | $R^2$ 0.34\| F: 29.23 | | $R^2$ 0.21\| F: 31.89 | | $R^{2:}$ 0.46 \| F:15.52 | | $R^{2:}$ 0.27 \| F:12.56 | | $R^{2:}$ 0.34\| F: 28.65 | |
| Over-identification | 1.46 (p = 0.70) | | 2.41 (p = 0.41) | | 2.40 (p = 0.45) | | 6.85 (p = 0.07) | | 1.44 (p = 0.70) | | 2.16 (p = 0.53) | |
| Endogenous Test | 3.83 (p = 0.051) | | 11.60 (p = 0.00) | | 0.959 (p = 0.33) | | 8.37 (p = 0.00) | | 3.92 (p = 0.04) | | 11.84 (p = 0.00) | |

*, **, and *** denote significance at 10%, 5% and 1% respectively (Two-tail); Robust p-values in brackets; No._Risk is number of risk exposures that firm disclosed; Audit is a proxy for big four auditors; Growth is ratio of book to market value; and Natural log inflation is the inflation rate of country i in year t from world bank.

# CHAPTER 6

# DISAGGREGATION, AUDITOR CONSERVATISM and IMPLIED COST OF EQUITY CAPITAL

## 1. INTRODUCTION

Recent economic reforms by the GCC have attracted foreign investors to their stock markets (Balli et al. 2011). These reforms have increased the number of listed firms listed on GCC stock exchanges from 399 to 702 between 2000 and 2011, inspired the revival of the auditing profession (Al-Shammari et al. 2008). Like most emerging markets, the GCC's financing markets are considered to be a banking-oriented system (Al-Yahyaee et al. 2011). However, an increasing interest by international investors in GCC equity markets, which provide tax haven opportunities and a strong return in capital markets (Bley and Saad 2012), signifies that corporate disclosure is important as a means of accessing equity financing and for creating greater transparency for private debt financing (Francis et al. 2005). For instance, Bley and Chen (2006) document in 2004 indicated that foreign portfolio investors alone obtained profit in the range of USD 150–170 billion from GCC stock markets.

At issue of importance is to what extent, and at what level of quality, of disaggregation of market risk disclosure in the presence of a conservative auditor will facilitate the reduction in information asymmetry. In this study, I investigate the effect of discretionary disaggregation in mandatory risk disclosures (disaggregation thereafter), auditor conservatism and the implied cost of equity (ICOE thereafter) on GCC financial firms. First, I examine whether the disaggregation provides investors with more private risk information and, in doing so, whether this reduces the ICOE. Secondly, I investigate the role of auditor

conservatism on the association between discretionary disaggregation in mandatory risk disclosures and the ICOE.

The survey of analysts, the U.S. Financial Accounting Standards Board and the International Accounting Standards Board (FASB/IASB (2009), highlights that disaggregation of accounting information into components results in the provision of comprehensive and useful information to stakeholders leading to enhanced transparency, particularly in regard to prediction of a firm's future cash flows. However, the degree of disaggregation in mandatory disclosure is subject to discretion and will ultimately depend on the capacity, incentives and opportunities available to management (SEC 2011; IASB 2005). The International Financial Reporting Standard (IFRS 7): *Disclosure of Financial Instruments* states that "an entity decides, in the light of its circumstances, how much detail it provides to satisfy the requirements of this IFRS, how much emphasis it places on different aspects of the requirements and how it aggregates information to display the overall picture without combining information with different characteristics." (p. 20). Specifically, IFRS 7 requires the firm to not disclose information on an aggregated basis if, in so doing, it obscures important differences between individual transactions or associated risks. For example, IFRS 7 requires firms to not aggregate market risk exposures from an area of hyperinflation with market risk exposures from an area of very low inflation. Thus, Schipper (2007) suggests that disaggregation should be required by standard setters to the extent that it improves investors' predictions of a firm's performance. Several research studies suggest that disaggregated disclosures in financial statements may mitigate the effects on the mispricing of earnings, improve alternatives for investors' disclosures and reduce uncertainties. For example, Lail et al. (2009) find that the persistence of accruals differs from the persistence of cash flow; therefore, they suggest that standard setters may focus on improving disaggregation about accruals. This leaves unanswered the question of why disaggregated risk disclosure would

assist investors in efficiently pricing a firm's cost of capital. The argument is that more informative risk disclosure allows investors to understand the information in order to predict future cash flows as they are then able to understand the managerial assumptions used in exposing market risk (Dobler 2008; Jorgensen and Kirschenheiter 2003). Hence, it is argued that investors can estimate the future economic benefits and valuation implications of risk disclosure more accurately when risk disclosure is discretionary through the reduction of information asymmetry (Jorgensen and Kirschenheiter 2003).

Hirshleifer and Teoh (2003) theoretical model suggests that discretionary disclosures, earnings' management activities and accounting measurement rules affect the firm's cost of capital even when these features have no relation to the underlying fundamentals of firms (Lambert 2003). Hirshleifer and Hong Teoh (2003) argue that aggregated information in financial statements may affect investors' ability to more accurately process information. For instance, they propose that, although earnings' components may be publicly available via media and financial analysts, the probability that investors intend to pursue the growth rate of separate earnings' components is higher under disaggregated disclosure than under aggregated disclosure. In terms of risk exposures, Rajgopal (1999) and Dobler (2008) argue that managers have limited incentive to disclose a firm's private risk information.[94] If risk information is widely disseminated among investors, this has implications for a firm (Solomon et al. 2000). For instance, the prior literature largely provides evidence of a positive association between the degree of information asymmetry and the ICOE (e.g. Diamond and Verrecchia 1991). Investors may thus engage in the acquisition of private information to reduce potential information asymmetry, although acquiring that information is likely to be costly (Barth et al. 2013). Hodder et al. (2001a) suggest that, if market risk

[94] Dobler (2008) outlines three reasons why a manager has the incentive to not disclose risk information: (1) the endowment of risk reporting uncertainty; (2) verification and credibility; and (3) threat of economic disadvantage. I empirically extend Dobler (2008) study by investigating the nature and benefits of disaggregated market risk disclosures of financial firms in GCC countries.

disclosures are disclosed in aggregated form, this will obscure essential information about the risk elements, while disaggregation will allow investors to discount the market risk exposures for each component. Furthermore, aggregated risk disclosures cause individual investors to react differently to how they would if risk is disaggregated (Hodder et al. (2001a). In addition, prospect theory suggests that the nature of losses in the market risk disclosures' requirements leads investors to react to losses more strictly than they do to gains. Therefore, disclosing risk disclosure in disaggregated form provides a rich information environment, with more accurate and relevant information to investors to assess a firm's cost of capital (Einhorn 2005; Hodder et al. 2001a; Libby and Brown 2013; Lansford et al. 2013). Given that provision of private information relating to risk is likely to reduce the degree of information asymmetry (Dobler 2008; Linsley and Shrives 2006), it is not unreasonable to assert then that voluntary disaggregation in mandatory market risk disclosures will facilitate the provision of private risk information to stakeholders (Einhorn 2005) and thus reduce the ICOE (Jorgensen and Kirschenheiter 2003), specifically if audited by a conservative auditor (Libby and Brown 2012).[95]

One could argue about the relevance of an analysis of GCC countries. However, recent cross-countries' studies (e.g., Francis et al. 2005; Peasnell et al. 2000; Leuz et al. 2003; Hope 2003; Ball et al. 2008; DeFond et al. 2007; Hail and Leuz 2006) that have investigated disclosure, financial reporting and the cost of capital, have not incorporated any observations of firms from GCC countries.[96] I believe that more detail within GCC studies can complement and provide different insight for investigations by previous international studies

[95] Specifically, effective risk management leads insiders to have more risk information compared to outsiders regarding firms' cash flow distribution; therefore, revealing more risk information can reduce information asymmetry (Dobler 2008). I predict that risk disclosure also has a negative relationship with information asymmetry. Like Barth et al. (2013), I conducted a correlation test between risk disclosure proxies and five different measures of information asymmetry suggested by the prior literature. I find negative correlations between risk disclosure proxies and the five measures of information asymmetry. See section 4.2.2.

[96] In addition, corporate governance in across-countries' investigation (e.g., Doidge et al. 2007; Lang et al. 2006) suffers from the same problem. For example, Lang et al. (2006) investigated 698 observations from 35 countries, and (Doidge et al. 2007) used a sample of 495 firms from 25 countries: neither included any GCC observations (See also, Dittmar et al. 2003; Klapper and Love 2004).

for several reasons. First, in the GCC countries, corporate transparency and disclosure requirements are not stringently imposed by the government and regulators on public firms owned by the ruling family and business élites (Union of Arab Banks 2007; Al-Yahyaee et al. 2011; IFC/Hawkamah 2008; Mazaheri 2013); hence, public and foreign investors continue to face information symmetry (Al-Sehali and Spear 2004; Mazaheri 2013; Ramady 2005).[97] Furthermore, another unique feature for investigation in the GCC region setting is that, as a conservative procedure, the regulators in GCC countries encourage firms to have financial statements audited and signed by at least two auditors (Al-Shammari et al. 2008). Hence, the regulators mainly rely on the audit report (Al-Shammari et al. 2008). In fact, very little research has investigated the implications of auditor conservatism in disaggregation disclosure specifically in developing and frontier markets (Libby and Brown 2012; Al-Shammari et al. 2008).[98]

Despite the potential importance that disclosure may have in reducing problems arising from information asymmetry, there has been comparatively little research on information asymmetry, idiosyncratic risks and the ICOE in the context of developing and frontier economies such as those of the GCC. The GCC setting as a frontier market provides stock return and estimation risk that differ from what is typical of well-established and developed markets (Bley and Saad 2012). Consequently, very little is known concerning the pricing process of stocks and of different risk components' estimations. Finally, the lack of analyst followers, lack of credible media coverage and lower investor protection in the GCC

[97] For example, Reuters reported on 19 February 2014 that the U.A.E's largest listed property company (by market value) linked to "Emaar" or the ruler of the Emirates, quietly replaced its Group Chief Executive late last year. But the company did not announce this to the stock exchange until late January, three days after Reuters reported the news. The "Emaar" refused to respond to the capital market authority's calls seeking comment on the delay.
(see <http://www.reuters.com/article/2014/02/19/-mideast-equities-regulation-idUSL5N0LH2BQ20140219>)

[98] Most recently, in March 2013, the GCC Accounting & Auditing Organization (GCCAAO) signed a landmark audit quality monitoring agreement with the Institute of Chartered Accountants in England and Wales (ICAEW). Al-Shammari et al. (2008) find that auditor quality (the Big 4) improves the IFRS compliance in GCC countries. Chi and Chin (2011) also test the application of two auditors in association with auditor quality in Taiwan from the perspective of the auditors' specialization.

make disaggregated accounting information a better mechanism for a firm's overall set of information that is utilized by insiders and outsiders in their investment decision making (Al-Yahyaee et al. 2011). In support of this argument, Abu-Nassar and Rutherford (1996) suggest that accounting information is the first priority source of information for users in emerging markets. I hypothesize that the decomposition of mandatory market risk disclosures into their components reduces the ICOE through the provision of more information regarding a firm's risk exposures and its capacity to deal with those risks.

## 2. BACKGROUND AND HYPOTHESES DEVELOPMENT

It is well documented that an increase in the quality of disclosure enhances firm value (Beyer et al. 2010; Healy and Palepu 2001) through the reduction of both information asymmetry and agency problems (Myers and Majluf 1984; Jensen and Meckling 1976). The relation between ICOE and the extent and quality of disclosure is well examined in the accounting literature (e.g. Botosan 1997; Botosan and Plumlee 2005; Daske 2006; Hail and Leuz 2006; Leuz and Verrecchia 2004; Li 2010; He et al. 2013). The association between disclosure and the cost of equity capital is discussed from main two main theoretical bases (For discussion see Daske 2006; Beyer et al. 2010). First, the quality of information can reduce the cost of equity through the reduction of non-diversifiable estimation risk. Investors use the available information to estimate the parameters of stock return or payoff distribution when forming the optimal portfolio. In addition to systematic risk, investors will face estimation risk which can be reduced through an increase in the extent and quality of information (Beyer et al. 2010; Artiach and Clarkson 2011). Second, information quality reduces the cost of equity capital through voluntary (private) disclosure on stock liquidity (see Verrecchia 2001). Hence, less-informed investors can liquidate their stock by selling it to better-informed

investors. Information asymmetry introduces adverse selection into stock transactions, thereby reducing market liquidity. To compensate the less-informed investor, firms must issue equity capital at a discount rate which will increase the cost of equity capital. Thus, firms provide private signals based on public information which, in turn, reduces information asymmetry amongst investors, increases liquidity and reduces the cost of equity capital (Amihud and Mendelson 1991; Diamond and Verrecchia 1991).[99] In Easley and O'hara (2004), the equilibrium model shows that the proportion of public and private information has an impact on the cost of capital. In that model, private information increases the risk for less-informed investors in holding stock, while the better-informed investors are able to shift their portfolio weight to incorporate new information. Empirically, Daske (2006) and Li (2010) provide evidence that the adoption of IFRS reduces investors' requirements for private information resulting in a reduction in the cost of equity capital. Conversely, Hughes et al. (2007) suggest that in large economies, idiosyncratic risk and asymmetric information risk are fully diversifiable and should not impact on the cost of capital.

Disaggregation of information into components is an effective way to disclose firms' private information in publicly available media (Schipper 2007). Hirshleifer and Teoh (2003) propose that a proportion of individual investors in the market are inattentive investors. In other words, inattentive investors miss important information in aggregation disclosure or misinterpret its implications; however, the lack of sophistication is not eliminated at the aggregate market level. Jorgensen and Kirschenheiter (2003) and Lambert (2003) argue that discretionary disclosures and risk disclosure impact on share price, even if the disaggregation information bears no relation to a firm's underlying fundamentals. Hence, Hirshleifer and

[99] Amihud and Mendelson (1991) argue that the cost of capital increases with wider bid-ask spreads, while Diamond and Verrecchia (1991) assert that greater disclosure reduces the amount of information that is revealed by large trades. When the impact of an adverse price is reduced in such trades, the investor is able to take a larger position in a firm's securities and, hence, this will increase demand for its securities and reduce the cost of capital.

Teoh (2003) suggest that this salient feature in financial statement disclosures may adversely impact on investors' ability to accurately process the information.

Einhorn (2005) also outlines the method by which firms make their private information available to the public through the disaggregation of disclosure components.[100] An increase in the disaggregation of mandatory disclosure occurs when components vary widely in their informational qualities (Einhorn 2005). Hence, Einhorn (2005) suggests that managers' incentive for disaggregated disclosure increases when it is more relevant to investors in terms of dealing with the uncertainty of a firm's value. Venter et al. (2013) find investors are able to price earnings' components more consistently compared to aggregated earnings. Hirst et al. (2007) find that disaggregation of earnings into components increases the credibility of management earnings' forecasts. Furthermore, Heitzman et al. (2010) find that firms disaggregate expenses into components when the information is more relevant to investors. From a segment disaggregation perspective, Herrmann and Thomas (2000) propose that the precision of forecasts is greater when a firm disaggregates its segment information. Botosan and Stanford (2005) suggest that firms reduce their disaggregation disclosures into operational segments (under Statement of Financial Accounting Standards [SFAS] No. 131)[101] to hide profitable segments that operate in less competitive industries. Berger and Hann (2007) find that managers reduce their reporting of disaggregated segments when faced with more proprietary costs, and reduce their disaggregation in segments with less profit when faced with abnormal low profit.

The location of disaggregated disclosures in the annual report is important. For instance, Riedl and Srinivasan (2010) find disaggregation of special items in the income statement is less persistent than those disclosed in footnotes. Libby and Brown (2012) find

[100] Einhorn (2005) claims, in proposition 10, that more discretion in mandatory disclosure reduces voluntary disclosure as it enlarges the managers' set of disclosure alternatives, hence enabling them to design mandatory disclosure to minimize the need for voluntary disclosure.
[101] SFAS No. 131 Disclosure about Segments of an Enterprise and related Information.

that the auditor is more conservative when expenses are disaggregated in the income statement. Bloomfield et al. (2014) suggest that more disaggregation of disclosure items is useful to users regardless of whether that information is disclosed in the financial statements or the notes to the financial statements.

Far less research has focused on the disaggregation of disclosures particularly risk disclosure. Borch (1968) defines risk as how far the actual values are distributed from a benchmark outcome. Risk disclosure is the related information on these distributed values. Risk disclosure is a cornerstone of a firm's investment decision (ICAEW 1999). For example, Linsley and Shrives (2006) suggest that risk disclosure motivates fund providers to eliminate a part of the premium to compensate for uncertainty in the firm's risk position. Jorgensen and Kirschenheiter (2003) find that the risk premium of firms is less if they disclose their risk exposures, compared to firms that do not. Hence, the role of risk -related information is highly important in decision making. If firms disclose more disaggregated risk information, as proxied by mandatory market risk disclosures, private risk signals become more informative. Therefore, firms that disaggregate more risk exposures are conveying more private information to the public relative to firms that disclose less disaggregated risk exposures. Investors who have less private information are able to combine this with more private information through disaggregated signals. I expect, if firms disclose more disaggregation in risk information relating to their market exposures, that this reduces the ICOE through the reduction of information asymmetry among investors. Based on this, I hypothesize that:

> ***H1****: Ceteris paribus, discretionary disaggregation in mandatory market risk disclosures significantly reduces the implied cost of equity capital.*

Prior literature suggests that the disaggregated disclosure increases the credibility of financial statements by reducing investors' uncertainty with regard to risk estimation (e.g

Hirst et al. 2007). Francis and Krishnan (1999) find that firms with higher accruals receive more modified reports from auditors for asset realization uncertainties and going concern problems than firms with lower accruals. As auditors are more likely to face litigation and therefore reputational risk when there is a high disaggregation of accruals, they act conservatively (Francis and Krishnan, 1999). DeAngelo (1981) asserts that firms disclose more comprehensive disclosure when audited by reputable auditors. On the other hand, choosing a reputable auditor is also a signal to the market that the firm's disclosure is of a high quality (Craswell and Taylor 1992). From a voluntary disclosure perspective, Clarkson et al. (2003) find that a firm's voluntary disclosure is at a higher level when audited by a conservative auditor especially after the remediation information problem in 2000 (Y2K, or the computerized two digits of the 21$^{st}$ century). Using an experiment methodology, Libby and Brown (2013) also find that the disaggregation of expense disclosures increases the reliability of income statements through decreasing the amount of management misstatements tolerated by auditors in comparison to those tolerated from aggregated firms. Based on these studies, I expect that the disaggregated mandatory market risk disclosures of firms will be informative and less misstated when firms are audited by a more conservative auditor, and that a conservative auditor, as an enforcement mechanism, will verify and make risk information more meaningful and credible (Dobler 2008). Therefore, risk information will be more likely to reduce much of the uncertainty and improve investors' confidence, thereby reducing the cost of capital. I hypothesize that:

> ***H2****: Ceteris paribus, the negative impact of discretionary disaggregated market risk disclosures on the implied cost of equity capital is greater when verified by conservative auditors.*

## 3. RESEARCH DESIGN AND MEASURMENT

### 3.1 Dependent Variable

*Simultaneous estimation of implied cost of capital using realized earnings*

I measure the ICOE based using two approaches. In the first approach, I adopt the portfolio-specific measure of Easton and Sommers (2007) after controlling for firm-specific variables. Easton (2006) and Easton and Sommers (2007) illustrate two main weaknesses of firm-specific measures for abnormal growth and residual models (e.g. Claus and Thomas 2001). First, potential biases in the measurement of investors' growth expectations may impact on the cost of capital estimates (Easton 2006). Second, firm-specific models use an optimistic proxy for expected earnings by applying analysts' earnings' forecasts. Easton and Sommers (2007) suggest that analysts' earnings' forecasts produce biases that impact on the cost of capital as analysts' forecasts vary in cross-section with firm size and analysts' stock recommendations (see for more detial Easton and Sommers 2007). In turn, this will lead to a bias in ICOE estimation. For example, Bhushan (1989) finds studies introducing a sampling measurement design that only used firms followed by analysts, thus reducing the power of the results' generalizability. Several researchers attempt to mitigate these weaknesses (Chen et al. 2010). For example, Easton (2004) develops a model for a firm-specific measure which simultaneously estimates the long-term growth rather than assuming that variable. However, these models (e.g. Easton 2004) still use analysts' earnings' forecasts as proxies for expected earnings (Chen et al. 2010). Nevertheless, Easton and Sommers (2007) develop a simultaneous portfolio estimation for the ICOE by mitigating the above drawback of the firm-specific measure which was adopted specifically from O'Hanlon and Steele (2000) residual income model. They replace the analysts' earnings' forecasts with the realized earnings to estimate the long-term growth and ICOE. Therefore, following Easton (2006), Daske (2006) and Chen et al. (2010), I establish Easton and Sommers (2007) firm-specific measure by using constant sample observations. The residual income valuation model is:

$$P_t = B_t + \sum_{\tau=1}^{\tau} \frac{E_t(EPS_{t+\tau} * B_{t+\tau-1})}{(1+r)^{\tau}} \qquad \textit{Eq. (8)}$$

where $P_t$ = stock price of the firm at time *t*: I use $March_{t+1}$ price for the closing date as the annual reports in GCC countries are published in the middle of $February_{t+1}$ for the current year closing. $B_t$ is the book value of the equity per share at time *t*; $E_t$ is the expectation on time *t*; $EPS_t$ is earnings per share at time *t*, and *r* is the cost of capital of a firm.

*Using current realized earnings as expected earnings*

Easton and Sommers (2007) show that equation (1) can be rewritten as:

$$P_t = B_t + \frac{(EPS_t - r^0_{ES} * B_{\tau-1}) * (1+g_{ES})}{r^0_{ES} - g_{ES}} \qquad \textit{Eq. (9)}$$

They assume that the current year residual income is $EPS_t - r^0_{ES} * B_{\tau-1}$; $r^0_{ES}$ is the ICOE from current earnings, which grows at $g_{ES}$ rate per year in perpetuity. Hence, they rearrange equation (10) as shown below:

$$\frac{EPS_t}{B_{t-1}} = \delta_0 + \delta_1 \frac{P_t - B_t}{B_{t-1}} + \mu_t \qquad \textit{Eq. (10)}$$

where $\delta_0 = r^0_{ES}$ and $\delta_1 = \frac{(r^0_{ES} - g_{ES})}{(1+g_{ES})}$; $\delta_0 \, and \, \delta_1$ can be obtained by estimating the firm portfolio at time *t*. This model is free from the weaknesses outlined previously. However, as the model is portfolio-based, this makes it difficult to control for other factors that affect the cost of capital because these factors are firm-specific variables. Dhaliwal et al. (2005) suggested a treatment to overcome this issue, as discussed and applied in Easton (2006), Daske (2006a), Chen et al. (2010) and Dhaliwal et al. (2005), by using the same observations in the regression models as are used in the regressions that obtain $\delta_0 \, and \, \delta_1$ (see footnote 10 (Easton 2006).

I then estimate the ICOE based on current earnings $R^0_{ES}$ by regressing equation (3) for the full sample, based on country (six countries) and year (five years); hence, I obtain 30 ICOE for 30 portfolios. Following Gomes et al. (2007) and Chen et al. (2010), I categorize firms into three classes; small, medium and large including the pool sample, based on market capitalization at the end of March in each country and year. Small firms are those whose

market capitalization is 50th or lower, medium firms are those whose market capitalization is between 50th and 75th, and the larger firms are those whose market capitalization is above 75th. I obtain a final pool sample of 588 firm-year observations: 281 firm-year observations for small firms, 146 firm-year observations for medium firms, and 161 firm-year observations for large firms.

In the second approach, I use three firm-specific measures of two-period growth based on analysts' earnings' forecasts, namely price–earnings–growth (PEG) (Easton (2004); Ohlson and Juettner-Nauroth (2005), and the PEG model using random walk forecasts based on Bradshaw et al. (2012) model.

### 3.2 Independent Variable

**Market Risk Disclosures: DMRD1**

I construct *DMRD1* based on the risk coverage, in accordance with Miihkinen (2012), which is the sum of the score of: (1) qualitative market risk disclosures and (2) disaggregation in quantitative market risk disclosures scaled by the number of risk exposures reported in the annual report (e.g., interest rate risk, currency exchange risk and equity risk from both VaR and Sen formats):

$$\boldsymbol{DMRD1} = \sum_{\mathbf{t=1}}^{\boldsymbol{n_{j1=14}}} \boldsymbol{Qulitative\_Items\ X_{ij}} + \sum_{\mathbf{t=1}}^{\boldsymbol{n_{j2=14(3)+13(3)}}} \frac{\boldsymbol{Quanttitative\_Items\ X_{ij}}}{\boldsymbol{No.of\ market\ risk\ exposure}}$$

*see Eq. (1)*

$X_{ij}$ = 1 if $i^{th}$ item is disclosed for $j^{th}$ firm

$n_{j1}$ = total score ($n_{j1} \leq 14$) from qualitative disclosures for $j^{th}$ firm

$n_{j2}$ = total score from quantitative disclosures for $j^{th}$ firm. For VaR format, the score = number of quantitative risk disclosures *x* maximum number of risk exposures disclosed. The same process is applied for Sen format.[102] Then, the total score from quantitative risk

[102] The quantitative disclosure component is derived from the VaR and Sen formats. For both formats, the maximum number of risk exposures in the GCC financial firms can be three. For example, if firm *j* discloses

disclosures is calculated as the sum of the scores from VaR and Sen formats scaled by the number of market risk exposures. Thus, the total value for *DMRD1* is the sum of the total qualitative and quantitative risk disclosures. Firms that disaggregate more risk exposures are expected to have a higher score in the index.

**Market Risk Disclosures: DMRD2**

Following Riedl and Srinivasan (2010), *DMRD2* is calculated based on the total score obtained from both VaR and Sen formats scaled by the formats' maximum expected score:

$$\boldsymbol{DMRD2} = \sum_{\mathbf{t=1}}^{\boldsymbol{n_{i1=14}}} \frac{\boldsymbol{Qulitative\_Items\ X_{ij}}}{\boldsymbol{n_{e,j}}} + \sum_{\mathbf{t=1}}^{\boldsymbol{n_{i2=14(3)+13(3)}}} \frac{\boldsymbol{Quantitative\_Items\ X_{ij}}}{\boldsymbol{n_{e,j}}}$$

*see Eq. (2)*

$X_{ij}$ = 1 if $i^{th}$ item is disclosed for $j^{th}$ firm

$n_{ej}$ = total maximum expected score for qualitative and quantitative disclosures for $j^{th}$ firm

$n_{j1}$ = total score ($n_{j1} \leq 14$) from qualitative disclosures for $j^{th}$ firm

$n_{j2}$ = total score from quantitative disclosures for $j^{th}$ firm. In calculating the quantitative score, I follow the same methodology as in *DMRD1* so that $0 \leq DMDR2 \leq 2$.

Thus, *DMRD2* captures the extent of disaggregated disclosure by each firm in each year in the annual report. I expect firms with a high positive correlation between risk items (e.g., interest rate and foreign currency exchange) and a higher quality of signals are most likely to disclose disaggregated market risk exposures in annual reports. Hence both *DMRD1* and *DMRD2* are different measures as the first measure considers the number of risk exposures. On the other hand, the second measure does not consider risk exposures; it only considers the risk format, mainly VaR and Sen.

### 3.3 Control Variables

two risk exposures (e.g., interest rate and foreign currency risk) under the VaR format, the maximum quantitative VaR score will be 28 (14 items * 2 exposures). The same process is also followed for the Sen format.

I include both firm-specific and country-specific control variables to test the association between the ICOE and disaggregation in mandatory market risk disclosures motivated by the prior literature on the ICOE (e.g. Francis et al. (2004); Hail and Leuz (2006); Lopes and de Alencar (2010); Li (2010)) and risk disclosure (e.g. Abraham and Cox (2007). *Beta* is calculates the expected return of an asset based on its beta and expected market return of at least 12 months a year. *Leverage* is the sum of the total short- and long-term liabilities divided by total assets. The book value of firm over market value is *BM*. Then I control for *Tab* (tabular is the third market risk disclosure format) as a dummy variable to check whether the tabular format complements or is a substitute for the market risk measure (Rajgopal 1999). Furthermore, Chen et al. (2009) show that a firm's corporate governance level and country-level investor protection have an impact on the cost of capital in an emerging market. Hence, I use firm-level corporate governance consisting of a 12-item index (*Firm CG*) as a control variable (the final score is scaled by 12 items). [103] In addition, I add the country's gross domestic product $(GDP)_{(\log)}$ in year *t* as a country-specific measure to control for country-specific variables (Pástor et al. 2008).[104] Furthermore, following Leuz et al. (2003) and Gul et al. (2013), I conduct factor analysis (*Factor*)[105] for country-level governance (which covers regulatory quality[106] and control for corruption level, as derived from Kaufmann et al. (2009)]).[107] I also apply a country-level investor protection index (which covers the extent of director liability and ease of shareholders to suit directors and managers from (La Porta et al. 2000). *Size* is the natural log of firm market capitalization at the end of the year. I also use portfolio size based on (Fama and French 1996): *HML* is high (book to

[103] See Appendix C for detailed information regarding the corporate governance index.
[104] To make my analysis robust, I re-test the main analysis by fixing the country effects: un-tabulated results provide consistent evidence.
[105] I check the factor value year by year and find that values vary for each country and year.
[106] Regulation quality consists of trade policy, competitive environment and labour market policies.
[107] Control of corruption consists of transparency and corruption.

market ratio) less low (book to market ratio) for year *t* in country *j*; *SMB* is small (market capitalization) less large (market capitalization) in year *t* for country *j*.

### 3.4 Empirical Models

*Model 1*

$$r^{0}_{ES_{t,c}} = a_0 + a_1 DMRD_{i,t} + a_2 Beta_{i,t} + a_3 Leverage_{i,t} + a_4 BM_{i,t} + a_5 Tab_{i,t} + a_6 Firm\ CG_{i,t} + a_7 GDP_{log\ i,j,t} + a_8 Factor_{i,j,t} + \sum Year\ \&\ Industry + \varepsilon_{i,t}$$

*Eq. (11.1)*

$$r^{0}_{ES_{t,c}} = a_0 + a_1 DMRD_{i,t} + a_2 Beta_{i,t} + a_3 Leverage_{i,t} + a_4 BM_{i,t} + a_5 Tab_{i,t} + a_6 Firm\ CG_{i,t} + a_7 GDP_{log\ i,j,t} + a_8 Factor_{i,j,t} + a_9 Size_{i,t} + \sum Year\ \&\ Industry + \varepsilon_{i,t}$$

*Eq. (11.2)*

$$r^{0}_{ES_{t,c}} = a_0 + a_1 DMRD_{i,t} + a_2 Beta_{i,t} + a_3 Leverage_{i,t} + a_4 BM_{i,t} + a_5 Tab_{i,t} + a_6 Firm\ CG_{i,t} + a_7 GDP_{log\ i,j,t} + a_8 Factor_{i,j,t} + a_9 HML_{i,t} + a_{10} SMB_{i,t} + \sum Year\ \&\ Industry + \varepsilon_{i,t}$$

*Eq. (11.3)*

where $r^{0}_{ES_{t,c}}$ is the ICOE for each country in year *t* that is obtained after regressing equation (10) for each country and year. Then, I run the regression based on the final sample of 588 firm-year observations. At this point, I can add a firm's control variables to the regressions. $DMRD_{i,t}$ is the disaggregation in mandatory market risk disclosure of firm *i* in year *t*. I then fix the year and clustering by firm. To test the ICOE, I regress equation (11.1) with the independent variables based on three classes: small firms, medium firms, large firms and the pool sample. Equation (11.2) is then used for the pooled regression by including two types of size, first, the firm size as measured by the natural log of the firm's market capitalization [LMVAL]) and, in equation (11.3), I include portfolio size *HML* and *SMB* based on (Fama and French 1996).

*Model 2*

$$r^{0}_{ES_{t,c}} = a_0 + a_1 DMRD_{i,t} + a_2\ AudConservative_{i,t} + a_3 DMRD_{i,t} * AudConservative_{i,t} + a_4 Beta_{i,t} + a_5 Leverage_{i,t} + a_6 BM_{i,t} + a_7 Tab_{i,t} + a_8 Firm\ CG_{i,t} + a_9 GDP_{log\ i,j,t} + a_{10} Factor_{i,j,t} + + \sum Year\ \&\ Industry + \varepsilon_{i,t}$$

*Eq.(12)*

Following that used in prior literature, I adopt two measures for auditor conservatism: (1) Big 4 auditor firms (*Big4*) and (2) discretionary accruals' quality. For the first measure, reputable

auditors act very conservatively to protect their reputation; hence, a firm that is audited by *Big4* reports more conservative disclosures (Clarkson et al. 2003; Kim et al. 2003; Liao et al. 2013). In some GCC countries, for example, in the KSA and in Kuwait (Al-Shammari et al. 2008), firms are audited by at least two auditors. In this study, I use a very strict measure for a conservative auditor. A firm that is proxied as being conservative has to meet two conditions: first, it is audited by at least two auditors and, second, at least one of these two auditors is from *Big4*. I have 407/588 financial firm-year observations that meet these criteria. The second measure is earnings' accruals' quality as a proxy for auditor conservatism. Firms that have high quality earnings' accruals are audited very conservatively (Francis and Krishnan 1999). A firm with high earnings' quality is proxied as receiving more conservative treatment from the auditors. I use performance-adjusted discretionary accruals developed by (Kothari et al. 2005). I estimate the following model by country and for each year that has at least nine observations.

$$\textbf{\textit{T-accruals}}_{i,t} = \alpha_0 + \alpha_1 \textbf{1/Asset}_{i,t-1} + \alpha_2 \Delta\textbf{\textit{Rev}}_{i,t} + \alpha_3 \textbf{\textit{PPE}}_{i,t} + \alpha_4 \textbf{\textit{ROA}}_{i,} + \varepsilon_{i,t} \qquad \textit{Eq.(13)}$$

I also adopt Jones (1991) model, as suggested by Klein (2002), by estimating the model below by industry and year that has at least nine observations:

$$\textbf{\textit{T-accruals}}_{i,t} = \alpha_0 + \alpha_1 [\textbf{1/Asset}_{i,t-1}] + \alpha_2 \Delta\textbf{\textit{Rev}}_{i,t} + \alpha_3 \textbf{\textit{PPE}}_{i,t} + \varepsilon_{i,t} \qquad \textit{Eq. (14)}$$

where *T-accruals* $_{i,t}$ is calculated as the change in non-cash current assets less the change in current liabilities less depreciation and amortization expenses for firm *i* in year *t* scaled by lagged total assets (Asset $_{i,t\,,\,t-1}$). $\Delta Rev_{i,t}$ is calculated as revenue growth of one year at year *t* for firm *i* scaled by lagged assets. $PPE_{i,t}$ is the firm's total property, plant and equipment scaled by lagged total assets, and $ROA_{i,t}$ is the firm's return on assets in year *t* for firm *i*. The residuals from the model are the discretionary accruals. Then, I obtain the absolute value multiplied by -1 (EQ $_{t-i}$): the higher the EQ $_{t,i}$ value, the higher the auditor conservatism. I

obtain 569 firm-year observations calculated by the model, as some missing values and lagged values are excluded from the total sample of 588, which noise the consistent estimate of the portfolio cost of equity capital ($r_{ES}^{0}$). However, (Easton 2006) includes these although the sample remains inconsistent in calculating ($r_{ES}^{0}$) due to fewer missing observations. I include Kothari et al. (2005), re-running the regressions using Kothari et al. (2005) model for my sensitivity analysis (Sen) with firm-specific models.

## 4. EMPIRICAL RESULTS AND DISCUSSION

### 4.1 Descriptive Statistics

Before examining the hypotheses using OLS, descriptive statistics and correlation analyses are reported. White's (1980) and Newey and West's (1987) standard errors heteroskedasticity-corrected, serially uncorrelated and autocorrelation have been used in all regression models. All variables are winsorized at the 1% and 99% levels to mitigate the potential effect of outliers on hypothesized associations. Table 6.1 reports summary statistics for the variables included in the regression models. The means (medians) of the ICOE ($\boldsymbol{r}_{ES}^{0}$) and the pool sample are *0.18 (0.14),* respectively. These numbers are very similar to the results of the prior study by (Lopes and de Alencar 2010). Table 6.1 shows that the means (medians) of *DMRD1*, *DMRD2* and *No_Risk* (number of disaggregated risk exposures for firm *i* in year *t*) for the sample are *7.86 (7.70)*; *5.75 (5.70)*; and *1.89 (2.00)* with a standard deviation of *3.756, 2.84* and *1.13*, respectively. The mean (median) corporate governance index of sample firms in the study is *0.27 (0.23),* suggesting that GCC financial firms exhibit lower levels of corporate governance. This also supports the argument found in (TNI Survey 2008) of GCC corporate governance. However, for some variables, I find over-dispersion between means and variances that might be due to endogeneity. As a robustness check, I have also re-checked this issue as part of the endogeneity analysis (see Table 5). Overall, Table 1

(Panels B and C) show that there is a large dispersion among the sample firms in terms of control variables, and this dispersion illustrates a considerable diversity in the sample. For the regression analysis, I use log transformations of each country's GDP. The descriptive statistics of other control variables are also generally in line with the prior studies suggesting that the sample is representative.

**Table 6.1: Descriptive Statistics**

| Variable | N | Mean | S.D. | Mdn | Max |
|---|---|---|---|---|---|
| $r_{ES}^{0}$ | 588 | 0.18 | 0.26 | .14 | 1.07 |
| DMRD1 | 588 | 7.86 | 3.76 | 7.70 | 17.00 |
| DMRD2 | 588 | 5.75 | 2.84 | 5.70 | 13.20 |
| No_Risk | 588 | 1.89 | 1.13 | 2.00 | 5.00 |
| AudCons B4 | 588 | 0.69 | 0.46 | 1.00 | 1.00 |
| AudCons Kothri | 588 | 1.94 | 5.82 | 0.24 | 49.09 |
| AudCons Jones | 569 | 1.72 | 5.92 | 1.24 | 50.10 |
| Beta | 588 | 0.55 | 0.33 | 0.48 | 1.60 |
| Leverage | 588 | 0.65 | 0.29 | 0.70 | 2.07 |
| BM | 588 | 1.78 | 2.27 | 1.24 | 19.36 |
| Tab | 588 | 0.39 | 0.49 | 0.00 | 1.00 |
| Firm CG | 588 | 0.27 | 0.23 | 0.17 | 0.92 |
| Log(GDP ) | 588 | 25.42 | 1.37 | 25.51 | 27.08 |
| GovFactor | 588 | -0.05 | 0.99 | -0.19 | 1.62 |
| Size | 588 | 6.14 | 1.72 | 6.08 | 9.74 |

## 4.2 Correlation Analysis

### 4.2.1 Variables correlation

Table 6.2 reports the Pearson correlations matrix of the variables included in the regression analysis. As predicted, *DMRD1* and *DMRD2* are negatively correlated with the ICOE. In addition, the disclosure proxies (*DMRD1* and *DMRD2*) are positively and significantly correlated with each other. Consistent with previous cost of capital studies, the proxy for the ICOE is significantly positively correlated with *Beta* and negatively correlated with *BM*, *Leverage*, $GDP_{(log)}$ and *GovFactor*, respectively. Moreover, un-tabulated correlation results show that other proxies of cost of capital measures are found to be positively correlated with proxies of disaggregation of mandatory market risk disclosures. These other proxies are $r_{t\text{-}oj}$ (the implied cost of equity based on Ohlson and Juettner-Nauroth (2005); $r_{t\text{-}peg}$ (the implied

cost of equity based on Easton [2004]); and $r_{t\text{-}peg\text{-}RW}$ (the implied cost of equity capital using Easton (2004)] based on Bradshaw et al. (2012) random walk forecasts).

### 4.2.2 To what Extent does Disaggregation in Mandatory Risk Disclosures have a Negative Effect on the ICOE?

The proxies of risk disclosures also have a negative impact on the proxies of information asymmetry. Regardless of the inclusion of the firm's fundamental risk factors in the estimation equation, I also apply the work of Barth et al. (2013) by conducting the Pearson correlations matrix test to estimate the correlation among the three proxies of disaggregation in mandatory market risk disclosures (*DMRD1*, *DMRD2*, *No_Risk*) and five different proxies of information asymmetry based on the discretionary accruals' quality (Dechow and Dichev 2002; Jones 1991; Kothari et al. 2005; McNichols and Stubben 2008; Teoh et al. 1998). The un-tabulated result shows that the first two proxies of disaggregation in mandatory risk disclosures have a negative and significant correlation with all proxies of information asymmetry at 0.01% level, and a negative and non- significant correlation between No_Risk and the proxies of information asymmetry.[108]

## 4.0 Regression Analysis

### 4.1 $H_1$: Association between Disaggregated Mandatory Risk Disclosures and Implied Cost of Capital (ICOE)

Table 6.3 reports the ordinary least square (OLS)[109] estimates of the association between the disaggregated mandatory risk disclosures and the ICOE. I show whether the ICOE of the firm depends systematically on *DMRD1* through the three different classes of firms' size as well as for the pool sample. *DMRD1* is a proxy for disaggregation in mandatory risk disclosures

[108] The correlations result is available upon request.

[109] The OLS result is reported after conducting the Breusch–Pagan Lagrange multiplier (LM) to decide the appropriateness of OLS over the random effect model. However, there is no significant difference across units (e.g., panel effects [including year and countries]). The null hypothesis proposes that variance across units is zero. I reject the null hypothesis for all models. For example, for *DMRD1*, the p-value of the LM test is 0.1157, 0.1110, 0.1120 and 0.1124, for small, medium, large and pool samples, respectively.

which reflects the quality of market risk disclosures. The provision of voluntary disaggregation in mandatory risk disclosures encourages firms to disclose more firm specific-information to the public which reduces information asymmetry. Managerial opportunistic behaviour is curbed by disclosure which also prevents managers from making value-destroying investment decisions, thus ultimately improving the cost of the capital of the firm. The coefficient on *DMRD1* is negative and statistically significant for all the model estimates: small (281 firm-year observations); medium (146 firm-year observations); large (161 firm-year observations); and pool firms (588 firm-year observations), -0.022***, -0.012*, -0.013*, -0.013*** and -0.012***, respectively).[110] I find significant reductions of approximately *22 basis points* in the ICOE for small firms at 0.01% level; *12 basis points* for medium firms at 0.05% level; and approximately *13 basis points* for large firms. For the pool sample, I find that disaggregation of risk exposures reduces by approximately *12–13 basis points* in the ICOE which is significant at 0.01% level.

My result is similar to that of Chen et al. (2010) who use Easton and Sommers (2007) model based on current realized earning as the expected return. They find firms post-adoption of the *Fair Disclosures Regulation* in the U.S. have a negative association with the ICOE; however, they find a significant coefficient only for medium firms. These findings are consistent with the expectation of ($H_1$). The results also reveal that *BM*, *Firm CG*, *Size* (*HML* and *SMB*), and country governance and investor protection decrease the cost of capital.

[110] * p < 0.1, ** p < 0.05, *** p < 0.01.

**Table 6.2: Pearson Correlation Matrix**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $r_{ES}^{0}$ | 1.000 | | | | | | | | | | | | | |
| DMRD2 | -0.029 | 1.000 | | | | | | | | | | | | |
| DMRD1 | -0.003 | 0.973*** | 1.000 | | | | | | | | | | | |
| No_Risk | 0.013 | 0.548*** | 0.541*** | 1.000 | | | | | | | | | | |
| AudConsB4 | 0.041 | -0.069* | -0.039 | 0.089** | 1.000 | | | | | | | | | |
| AudConsKotheri | -0.007 | 0.289*** | 0.296*** | 0.081** | 0.088** | 1.000 | | | | | | | | |
| AudCons Jones | 0.014 | 0.270*** | 0.274*** | 0.072* | 0.052 | 0.941*** | 1.000 | | | | | | | |
| Beta | 0.196*** | 0.041 | 0.051 | -0.006 | 0.270*** | 0.082** | 0.111*** | 1.000 | | | | | | |
| Leverage | -0.006 | 0.344*** | 0.330*** | 0.125*** | -0.023 | 0.186*** | 0.173*** | -0.021 | 1.000 | | | | | |
| BM | -0.108*** | -0.025 | -0.037 | -0.165*** | 0.085** | -0.004 | -0.023 | -0.005 | 0.153*** | 1.000 | | | | |
| Tab | 0.040 | 0.340*** | 0.330*** | 0.1475*** | 0.097*** | 0.113*** | 0.065 | 0.019 | 0.250*** | 0.031 | 1.000 | | | |
| Firm CG | 0.066 | 0.180*** | 0.169*** | -0.068* | -0.403*** | 0.0928** | 0.112*** | 0.045 | 0.1103*** | 0.056 | 0.188*** | 1.000 | | |
| Log(GDP ) | -0.298*** | -0.081** | -0.063 | -0.079** | 0.733*** | 0.062 | 0.041 | 0.2054*** | 0.010 | 0.047 | 0.128*** | -0.226*** | 1.000 | |
| GovFactor | -0.275*** | -0.0372 | -0.028 | 0.060* | 0.763*** | 0.069* | 0.030 | 0.1765*** | -0.020 | 0.182*** | 0.060 | -0.196*** | 0.624*** | 1.000 |

*, **, and *** denote significance at 10%, 5% and 1% respectively.

All variables definitions in Appendix C

Consistent with the prior literature (e.g., Botosan 1997), I find that *Beta* and *Leverage* has a positive association with the ICOE. However, in model $\boldsymbol{r}^{0}_{ES-\text{pool1}}$, I find a positive association between *DMRD1* and firm size based on firm-level size but this is not significant. I follow (Chen et al. 2010) by replacing firm-level size by portfolio-level size based on (Fama and French 1996) factors (*HML* and *SMB*) in model $\boldsymbol{r}^{0}_{ES-\text{pool2}}$. Consistent with studies in the GCC (e.g., Bley and Saad 2012), I find a significant negative association between both measures (*HML* and *SMB*) and the ICOE. In the regressions, I planned to include year and industry fixed effects (FE). I then included only year FE since the sample covers one industry digit.[111] Also, I provide robustness checks and cluster the firms over five years for all models to mitigate the potential heteroskedasticity and serial correlation dependence.

### 4.2 $H_2$: Interaction between Disaggregation in Mandatory Market Risk Disclosures, Auditor Conservatism and Implied Cost of Capital (ICOE)

Table 6.4 presents the impact of auditor conservatism and disaggregation in mandatory market risk disclosures with respect to *DMRD1*. Firms with more disaggregated mandatory market risk disclosures and a conservative auditor are expected to face lower number of misstatements as a conservative auditor is more likely to ask firm management to correct errors and follow-up on reporting issues before the financial statements are released. The interaction between auditor conservatism and disaggregation in mandatory market risk disclosures offers managers alternative means to infer with the market direction so they can transfer more precise private signals as part of public disclosure which reduces the cost of capital. Firms with disaggregation in mandatory market risk disclosures that are audited by less conservative auditors enjoy a relatively lower reduction in the cost of capital. The reason

[111] The GCC countries share homogenous features, such as being similar geographically, demographically and industrially (with oil). They also share similar features such as their political regimes and the application of similar accounting standards (IAS/IFRS). Therefore, I expect the *DMRD* index score to be in-variant in some years and, motivated by the prior empirical studies (e.g. Lin et al. 2008; Khurana et al. 2006), I report the results based on year fixed effects. The un-tabulated results are consistent.

for this is that firms with only disaggregated mandatory market risk disclosures suffer from a lack of investor confidence and uncertainties which do not exist with firms that have conservative auditors (Libby and Brown 2013).

**Table 6.3: Disaggregated Market Risk Disclosures and Implied Cost of Equity Capital**

| | $r^0_{ES-\text{Samll}}$ | $r^0_{ES-\text{Medium}}$ | $r^0_{ES-\text{Large}}$ | $r^0_{ES-\text{pool1}}$ | $r^0_{ES-\text{pool2}}$ |
|---|---|---|---|---|---|
| **Intercept** | 2.103*** | 2.218*** | 1.140* | 1.764*** | 1.512*** |
| | (-6.71) | (-3.94) | (-1.76) | (-7.17) | (6.29) |
| **DMRD1** | **-0.022*** ** | **-0.012*** | **-0.013*** | **-0.013*** ** | **-0.012*** ** |
| | (-3.23) | (-1.68) | (-1.89) | (-3.05) | (-3.07) |
| **Beta** | 0.216*** | 0.342*** | 0.217*** | 0.227*** | 0.214*** |
| | (4.22) | (3.44) | (2.99) | (5.46) | (5.33) |
| **Leverage** | -0.047 | 0.029 | 0.069 | -0.02 | 0.000 |
| | (-0.68) | (0.36) | (1.38) | (-0.45) | (0.01) |
| **BM** | -0.003** | 0.026** | 0.004 | -0.001 | -0.012*** |
| | (-2.13) | (2.11) | (0.47) | (-0.73) | (-3.32) |
| **Tab** | -0.015 | 0.029 | 0.093* | 0.038 | 0.046* |
| | (-0.59) | (0.58) | (1.97) | (1.49) | (1.84) |
| **Firm CG** | -0.097 | -0.071 | -0.01 | -0.049 | 0.014 |
| | (-0.90) | (-0.78) | (-0.09) | (-0.81) | (0.24) |
| **Log(GDP )** | -0.080*** | -0.090*** | -0.041* | -0.067*** | -0.057*** |
| | (-6.11) | (-4.03) | (-1.70) | (-6.86) | (-6.30) |
| **GovFactor** | -0.042* | 0.021 | -0.068** | -0.036** | -0.074*** |
| | (-1.81) | (0.48) | (-2.31) | (-2.10) | (-3.43) |
| **Size** | | | | 0.019 | |
| | | | | (1.30) | |
| **HML** | | | | | -0.001*** |
| | | | | | (-3.54) |
| **SMB** | | | | | -0.000** |
| | | | | | (-2.49) |
| **Year & Industry FX** | Yes | Yes | Yes | Yes | Yes |
| **Firm *Robust/Cluster*** | Yes | Yes | Yes | Yes | Yes |
| **Adj. R-sq** | 35.1% | 283% | 36.7% | 31.7% | 31.4% |

*, **, and *** denote significance at 10%, 5% and 1% respectively.
Robust *t*-values in parentheses
The variable definitions are in *Appendix C*.

To determine whether auditor conservatism is impacted by firm size across GCC countries, I also divided the sample into three classes of firms: small, medium and large. I employ three measures of auditor conservatism that are used in the prior literature. The first two are measures of discretionary accruals based on models by Kothari et al. (2005) and Jones (1991). The third is based on the Big 4 (*AuditBig4*) (Francis and Krishnan, 1999). The coefficient on interactions between disaggregation in mandatory market risk disclosures (*DMRD1*) and auditor conservatism is negative for all models. The significance level varies based on the models used and firm's size. For example, I find significant associations for

large firms and the pool sample in *Model 1*; significant association for the pool sample in *Model 2*, and significant association for small and medium firms in *Model 3*. This suggests that the proxies capture the various differences in interaction. The coefficient of the main independent variable (*DMRD1*) is found to be significant and negative in all models with the exception of small, medium and large firms in *Model 3*. This suggests that firms with a conservative auditor and high quality and more disaggregation in mandatory market risk disclosures enjoy a greater reduction in the ICOE, compared to their counterparts. For instance, in *Model 1*, as shown in Table 6.3, I find the coefficient of *DMRD1* for large firms is **-0.0013*** which is significant at 0.10% level. Then, as shown in Table 6.4, large firms that employ a conservative auditor and have high disaggregation in mandatory market risk disclosures have greater impact on the ICOE, by an effect of **-0.0023** (-0.0022** *DMRD1* + -0.0010* *DMRD1 * AudCons* $_{Kothari}$) at 0.05% level. Furthermore, the control variables are in line with the base regressions. These results signify that the presence of auditor conservatism affects the level of disaggregated disclosures. These results are also consistent with the findings that the more conservative the auditor, the more credible are the disclosures.

## 4.3 Sensitivity Analysis

### *4.3.1 Alternative disaggregation in mandatory market risk disclosures*

I conduct several additional robustness checks. First, to address the potential concern that the measurement of disaggregation in mandatory market risk disclosures does not adequately capture the level of disaggregation, I construct a second disaggregation index (*DMRD2*) which measures the extent of market risk disclosures. The results in Table 6.5 show that the main inference is unchanged even after different specifications of disaggregation in mandatory market risk disclosures. My results are significant and negative at the 0.01% level

**Table 6.4: Disaggregated Market Risk Disclosures (DMRD1), Audit Conservatism and Implied Cost of Equity Capital:**

| | Model 1: AudCons Kothri | | | | Model 2: AudCons Jones | | | | Model 3: AudCons B4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $r^0_{ES-Samll}$ | $r^0_{ES-Medium}$ | $r^0_{ES-Large}$ | $r^0_{ES-pool}$ | $r^0_{ES-Samll}$ | $r^0_{ES-Medium}$ | $r^0_{ES-Large}$ | $r^0_{ES-pool}$ | $r^0_{ES-Samll}$ | $r^0_{ES-Medium}$ | $r^0_{ES-Large}$ | $r^0_{ES-pool}$ |
| Intercept | 2.579*** | 2.581*** | 1.281* | 1.560*** | 2.074*** | 2.685*** | 1.072 | 1.512*** | 2.853*** | 3.612*** | 2.792*** | 2.698*** |
| | (7.25) | (4.02) | (1.93) | (6.72) | (6.05) | (4.11) | (1.67) | (6.00) | (14.53) | (8.81) | (4.51) | (11.82) |
| DMRD1 | -0.025*** | -0.016* | -0.017** | -0.013*** | -0.022*** | -0.015* | -0.019** | -0.013*** | -0.004 | -0.002 | -0.007 | -0.006** |
| | (-3.21) | (-1.90) | (-2.23) | (-3.12) | (-2.94) | (-1.89) | (-2.26) | (-3.03) | (-1.19) | (-0.53) | (-0.95) | (-2.06) |
| AudCons | 0.009 | 0.032 | 0.011* | 0.010** | 0.017 | 0.038 | 0.013 | 0.011** | 0.865*** | 0.862*** | 0.470*** | 0.706*** |
| | (0.95) | (0.88) | (1.92) | (2.10) | (1.49) | (1.41) | (1.57) | (2.20) | (11.2) | (6.88) | (4.60) | (11.89) |
| DMRD * AudCons | -0.002 | -0.003 | -0.001* | -0.001** | -0.003 | -0.004 | -0.001 | -0.001** | -0.027*** | -0.019* | -0.004 | -0.002 |
| | (-1.21) | (-0.91) | (-1.83) | (-2.16) | (-1.54) | (-1.43) | (-1.49) | (-2.24) | (-3.19) | (-1.81) | (-0.49) | (-0.60) |
| Beta | 0.227*** | 0.326*** | 0.206*** | 0.210*** | 0.234*** | 0.351*** | 0.234*** | 0.220*** | 0.100** | 0.194** | 0.135** | 0.108*** |
| | (4.35) | (3.08) | (2.79) | (5.21) | (4.31) | (3.18) | (2.86) | (5.13) | (2.12) | (2.6) | (2.62) | (3.67) |
| Leverage | -0.035 | 0.028 | 0.101* | 0.001 | -0.051 | 0.033 | 0.141** | 0.002 | 0.012 | 0.017 | 0.201*** | 0.026 |
| | (-0.47) | (0.36) | (1.76) | (0.03) | (-0.69) | (0.41) | (2.46) | (0.04) | (0.35) | (0.30) | (4.20) | (0.81) |
| BM | -0.023* | -0.053** | -0.010** | -0.012*** | -0.022 | -0.053** | -0.011** | -0.013*** | -0.005 | -0.030** | -0.012** | -0.009*** |
| | (-1.76) | (-2.48) | (-2.35) | (-3.36) | (-1.66) | (-2.494) | (-2.60) | (-3.22) | (-0.43) | (-2.18) | (-2.40) | (-3.14) |
| Tab | -0.017 | 0.041 | 0.086* | 0.046* | -0.011 | 0.035 | 0.071 | 0.042 | 0.000 | 0.057* | 0.065 | 0.021 |
| | (-0.65) | (0.82) | (1.80) | (1.80) | (-0.47) | (0.66) | (1.44) | (1.64) | (0.01) | (1.89) | (1.63) | (1.10) |
| Firm CG | -0.15 | -0.107 | 0.023 | 0.016 | -0.129 | -0.095 | 0.018 | 0.021 | 0.247*** | 0.323*** | 0.188** | 0.201*** |
| | (-1.25) | (-1.20) | (0.26) | (0.27) | (-1.05) | (-1.07) | (0.19) | (0.35) | (4.91) | (5.31) | (2.31) | (4.66) |
| Log(GDP) | -0.086*** | -0.096*** | -0.045* | -0.057*** | -0.080*** | -0.095*** | -0.045* | -0.056*** | -0.139*** | -0.164*** | -0.122*** | -0.131*** |
| | (-6.17) | (-3.78) | (-1.81) | (-6.55) | (-5.73) | (-3.72) | (-1.78) | (-5.90) | (-17.90) | (10.02) | (-5.12) | (-14.95) |
| GovFactor | -0.040* | 0.025 | -0.056* | -0.076*** | -0.042* | -0.024 | -0.063** | -0.072*** | -0.242*** | -0.141*** | -0.112*** | -0.243*** |
| | (-1.82) | (-0.58) | (-1.92) | (-3.60) | (-1.92) | (-0.54) | (-2.17) | (-3.12) | (-8.31) | (-3.27) | (-4.52) | (-11.68) |
| HML | | | | -0.001*** | | | | -0.001*** | | | | -0.001*** |
| | | | | (-3.57) | | | | (-3.47) | | | | (-5.39) |
| SMB | | | | -0.000** | | | | -0.000* | | | | -0.000*** |
| | | | | (-2.49) | | | | (-1.78) | | | | (-6.06) |
| Year & Industry FX | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Firm Robust/Cluster | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Adj. R-sq | 33.2% | 29.5% | 36.6% | 31.3% | 32.1% | 30.8% | 36.8% | 30.8% | 64.9% | 57.6% | 51.2% | 56.8% |

*, **, and *** denote significance at 10%, 5% and 1% respectively.
Robust *t*-values in parentheses
The variable definitions are in *Appendix C*.

for firms of all sizes with the exception of large firms where I find the coefficient to be significant at 0.10% level. Furthermore, the control variables are in line with the main regressions. Then, I also test whether the results on the interaction between disaggregation in mandatory market risk disclosures and auditor conservatism are affected by the alternative measure of disaggregation in mandatory market risk disclosures. Table 6.6 confirms that my results in all models are robust to the alternative definition of disaggregated mandatory market risk disclosures. Furthermore, the un-tabulated result of the pool sample shows that the *DMRD2*'s coefficient is negative and significant (*-0.0034*) at 5% level with *t*-statistics of *-2.21* with the ICOE, even after controlling for country dummies.[112]

I also adopt a third alternative measure of disaggregation of market risk disclosures being the number of disaggregated risk exposures (*No_Risk*) in the sense that a firm that discloses more market risk exposure is disaggregating more risk exposures. Un-tabulated results show that the coefficient for the association between *No_Risk* and the disaggregation of market risk disclosures is negative and significant at 0.05% level for small firms, and is negative and not significant for other regressions.

### 4.3.2 Potential serial dependence

Following Hoi et al. (2013), I average the variables over the five-year sample period to mitigate concern about potential serial dependence in the data. Then, I re-run the regressions in the main analysis using the average variables from the pool sample for both measures of *DMRD1* and *DMRD2*. The un-tabulated results show that my results are consistent with the main regression results. For instance, I find negative and significant coefficients at 0.01%, 0.05% and 0.01% levels for both *DMRD1* and *DMRD2* for all size levels of firms (small, large and pool samples, respectively), but not for firms of medium size, where I find a negative but non-significant association.

[112] Prior literature in the GCC region does not control for country effects (e.g. see Bley and Saad 2011).

*4.3.3 Factor analysis decomposition and Firm CG decomposition*

Moreover, I replace the factor variable ($GovFactor_t$) obtained from factor analysis with decomposed items, namely country governance level and investor protection level (consisting of the extent of disclosure liability, ease of shareholders to suit directors and managers, regulatory quality and control of corruption indexes) and re-run the regressions. I find that the results' sign and the effects are almost unchanged for both *DMRD1* and *DMRD2*, and that the coefficients are negative and significant at the 0.01% level for all of the small, large and pool samples, but not for medium firms where I find the coefficient to be negative and significant

**Table 6.5 Additional tests: Disaggregated Market Risk Disclosures (DMRD2) and Implied Cost of Equity Capital**

| | $r^0_{ES-\text{Samll}}$ | $r^0_{ES-\text{Medium}}$ | $r^0_{ES-\text{Large}}$ | $r^0_{ES-\text{pool1}}$ | $r^0_{ES-\text{pool2}}$ |
|---|---|---|---|---|---|
| **Intercept** | 2.296*** | 3.000*** | 1.350** | 1.917*** | 1.576*** |
| | (7.05) | (4.65) | (2.15) | (7.96) | (6.41) |
| **DMRD2** | **-0.034*** ** | **-0.024** ** | **-0.019** ** | **-0.024*** ** | **-0.020*** ** |
| | (-3.83) | (-2.31) | (-2.21) | (-4.40) | (-3.78) |
| **Beta** | 0.224*** | 0.317*** | 0.212*** | 0.219*** | 0.213*** |
| | (4.41) | (3.21) | (2.92) | (5.42) | (5.37) |
| **Leverage** | -0.035 | 0.051 | 0.108** | 0.011 | 0.006 |
| | (-0.51) | (0.69) | (2.03) | (0.24) | (0.13) |
| **BM** | -0.021* | -0.054** | -0.010** | -0.018*** | -0.013*** |
| | (-1.75) | (-2.61) | (-2.32) | (-3.84) | (-3.35) |
| **Tab** | -0.010 | 0.047 | 0.087* | 0.039 | 0.049** |
| | (-0.41) | (0.92) | (1.84) | (1.61) | (1.98) |
| **Firm CG** | -0.127 | -0.106 | 0.019 | -0.039 | 0.009 |
| | (-1.21) | (-1.22) | (0.20) | (-0.66) | (0.16) |
| **Log(GDP )** | -0.086*** | -0.104*** | -0.048** | -0.075*** | -0.058*** |
| | (-6.40) | (-4.24) | (-2.08) | (-7.90) | (-6.41) |
| **GovFactor** | -0.031 | 0.027 | -0.053* | -0.028* | -0.073*** |
| | (-1.52) | (0.66) | (-1.89) | (-1.75) | (-3.42) |
| **Size** | | | | 0.034** | |
| | | | | (2.36) | |
| **HML** | | | | | -0.001*** |
| | | | | | (-3.53) |
| **SMB** | | | | | -0.000** |
| | | | | | (-2.56) |
| **Year & Industry FX** | Yes | Yes | Yes | Yes | Yes |
| **Firm *Robust/Cluster*** | Yes | Yes | Yes | Yes | Yes |
| **Adj. R-sq** | 35.2% | 30.1% | 34.8% | 29.5% | 32.4% |

*, **, and *** denote significance at 10%, 5% and 1% respectively.
Robust *t*-values in parentheses
The variable definitions are in *Appendix C.*

at the 0.10% level. I also decompose the *Firm CG* index into the 12 items and I then re-run the main regressions in Table 6.3 and Table 6.5 for both *DMRD1* and *DMRD2*. My results

are unchanged in that I find them to be negative and significant for all firm sizes at 0.01%, 0.10%, 0.05% and 0.01% levels for small, medium and large firm and pool samples, respectively. In addition, I find that having the board chairman on board committees, all characteristics of the audit committee and independence of the remuneration committee reduce the ICOE.

### 4.3.5 Sample partition into sub-samples

As suggested by Lu and Sapra (2009), to increase the statistical power of auditor conservatism tests with the proxy for disaggregation disclosures, I divided the sample into two sub-samples: first firms with conservative auditors and, second, firms that did not have conservative auditors, for *DMRD1*, *DMRD2* and *No_Risk*. Table 6.7 shows that in the main test, the ICOE is negatively and significantly reduced for firms with conservative auditors at the 0.01% level. For *DMRD1*, I obtain *0.007**** and for *DMRD2,* the coefficient is -*0.011****, while for *No_Risk*, I find a coefficient of -0.018* significant at 0.10% level. On the other hand, I find a positive and non-significant association for the second sub-sample in all measures of disaggregated disclosures. This provides further evidence that the level of disaggregated mandatory market risk disclosures is improved when audited by conservative auditors, hence reducing the ICOE.

**Table 6.6 Additional tests: Disaggregated Market Risk Disclosures (DMRD2), Audit Conservatism and Implied Cost of Equity Capital**

| | AudCons $_{Kothari}$ | | | | AudCons $_{Jones}$ | | | | AudCons $_{B4}$ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $r^0_{ES-Samll}$ | $r^0_{ES-Medium}$ | $r^0_{ES-Large}$ | $r^0_{ES-pool}$ | $r^0_{ES-Samll}$ | $r^0_{ES-Medium}$ | $r^0_{ES-Large}$ | $r^0_{ES-pool}$ | $r^0_{ES-Samll}$ | $r^0_{ES-Medium}$ | $r^0_{ES-Large}$ | $r^0_{ES-pool}$ |
| **Intercept** | 2.217*** | 2.912*** | 1.279* | 1.620*** | 2.161*** | 2.818*** | 1.074* | 1.586*** | 2.880*** | 3.689*** | 2.795*** | 2.709*** |
| | (6.58) | (4.31) | (1.93) | (6.63) | (6.24) | (4.15) | (1.68) | (6.15) | (15.05) | (8.43) | (4.52) | (11.9) |
| **DMRD2** | **-0.035*** ** | **-0.027** ** | **-0.022** ** | **-0.022*** ** | **-0.036*** ** | **-0.025** ** | **-0.026** ** | **-0.022*** ** | **-0.004** | **-0.005** | **-0.009** | **-0.009** ** |
| | (-3.81) | (-2.35) | (-2.27) | (-3.81) | (-3.70) | (-2.26) | (-2.33) | (-3.78) | (-0.99) | (-0.67) | (-0.94) | (-2.25) |
| AudCons | 0.010 | 0.039 | 0.012* | 0.011** | 0.020* | 0.031 | 0.014 | 0.013** | 0.867*** | 0.833*** | 0.470*** | 0.706*** |
| | (1.15) | (1.07) | (1.98) | (2.46) | (1.77) | (1.13) | (1.64) | (2.52) | (11.72) | (6.61) | (4.59) | (11.99) |
| **DMRD * AudCons** | **-0.003** | **-0.005** | **-0.001*** | **-0.001** ** | **-0.005*** | **-0.004** | **-0.001** | **-0.001*** ** | **-0.425*** ** | **-0.226** | **0.049** | **-0.046** |
| | (-1.28) | (-1.10) | (-1.90) | (-2.59) | (-1.75) | (-1.14) | (-1.57) | (-2.62) | (-4.05) | (-1.61) | (0.50) | (-0.85) |
| **Beta** | 0.224*** | 0.319*** | 0.207*** | 0.209*** | 0.227*** | 0.346*** | 0.234*** | 0.218*** | 0.099** | 0.197** | 0.135** | 0.109*** |
| | (4.43) | (3.17) | (2.81) | (5.31) | (4.38) | (3.20) | (2.89) | (5.14) | (2.12) | (2.63) | (2.62) | (3.74) |
| **Leverage** | -0.037 | 0.040 | 0.104* | 0.004 | -0.044 | 0.047 | 0.145** | 0.009 | 0.013 | 0.021 | 0.202*** | 0.028 |
| | (-0.55) | (0.53) | (1.80) | (0.09) | (-0.61) | (0.58) | (2.51) | (0.19) | (0.40) | (0.36) | (4.18) | (0.89) |
| **BM** | -0.022* | -0.052** | -0.010** | -0.012*** | -0.022* | -0.053** | -0.011** | -0.013*** | -0.005 | -0.027** | -0.012** | -0.009*** |
| | (-1.78) | (-2.56) | (-2.27) | (-3.35) | (-1.71) | (-2.51) | (-2.59) | (-3.29) | (-0.43) | (-2.02) | (-2.38) | (-3.14) |
| **Tab** | -0.009 | 0.051 | 0.085* | 0.050** | -0.005 | 0.044 | 0.070 | 0.045* | 0.007 | 0.066** | 0.064 | 0.023 |
| | (-0.35) | (1.00) | (1.79) | (2.05) | (-0.22) | (0.82) | (1.42) | (1.79) | (0.37) | (2.16) | (1.61) | (1.22) |
| **Firm CG** | -0.136 | -0.115 | 0.024 | 0.012 | -0.132 | -0.104 | 0.018 | 0.017 | 0.231*** | 0.310*** | 0.189** | 0.196*** |
| | (-1.28) | (-1.31) | (0.26) | (0.21) | (-1.11) | (-1.19) | -0.19 | -0.28 | -4.89 | -4.97 | -2.32 | -4.55 |
| **Log(GDP )** | -0.084*** | -0.100*** | -0.045* | -0.059*** | -0.082*** | -0.100*** | -0.045* | -0.058*** | -0.139*** | -0.164*** | -0.122*** | -0.131*** |
| | (-6.22) | (-3.89) | (-1.82) | (-6.54) | (-5.88) | (-3.81) | (-1.80) | (-6.02) | (-18.47) | (-10.14) | (-5.15) | (-15.08) |
| **GovFactor** | -0.035* | 0.020 | -0.057* | -0.072*** | -0.041* | 0.022 | -0.063** | -0.071*** | -0.233*** | -0.138*** | -0.112*** | -0.241*** |
| | (-1.68) | (0.48) | (-1.95) | (-3.42) | (-1.97) | (0.52) | (-2.21) | (-3.13) | (-8.14) | (-3.20) | (-4.52) | (-11.57) |
| **HML** | | | | -0.001*** | | | | -0.001*** | | | | 0.001*** |
| | | | | (-3.57) | | | | (-3.48) | | | | -5.39 |
| **SMB** | | | | -0.000** | | | | -0.000* | | | | -0.000*** |
| | | | | (-2.42) | | | | (-1.82) | | | | (-6.07) |
| **Year & Industry FX** | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **Firm *Robust/Cluster*** | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **Adj. R-sq** | 34.9% | 32.1% | 36.6% | 32.5% | 34.3% | 32.0% | 37.0% | 32.0% | 66.3% | 57.5% | 51.2% | 57.2% |

*, **, and *** denote significance at 10%, 5% and 1% respectively.
Robust *t*-values in parentheses
The variable definitions are in *Appendix C.*

### 4.3.6 Potential endogeneity between disaggregated mandatory market risk disclosures and implied cost of capital: using two-stage least square (2SLS)

It is possible that my proxies for disaggregated market risk disclosures (*DMRD1* and *DMRD2*) are endogenously determined along with the ICOE due to omitted variables and measurement error.[113] If the proxies are endogenous and correlated with the error term, I expect that OLS will inconsistently estimate the parameters in the regressions. Motivated by Hossain et al. (2005) and Barton and Waymire (2004), my approach to deal with endogeneity is to resort to econometrics by using an instrumental variables estimator such as two-stage least squares (2SLS). The selection of instrumental variables is guided by Larcker and Rusticus (2010) to report the results and justify the use of selected instrumental variables and to present a number of diagnostic tests.

The selection of instruments should also be stable the constant sample of 588 that is acquired to calculate $\boldsymbol{r}_{ES}^{0}$; and thus, I include instruments only that do not have any missing values. I use the number of risks scaled by 2 if the firm uses two formats of market risk disclosures (*No_Risk*); a qualitative index score scaled by 2 if firms use two formats of market risks *(No_QulRisk)*; firms' $Age_{(log)}$; *Tang* (total property, plant and equipment (PPE) scaled by total assets); female director on the board of directors (*FemaleMem*); and a dummy variable of 1 if firms disclose their hedging instruments on market risk; otherwise 0. The theoretical argument for the use of the number of risks and the qualitative index as an instrumental variable is that the number of market risk exposures that firms disclose in annual reports is correlated with the disaggregated market risk disclosures index but not with the cost of capital. In addition, older firms have well-established reporting systems; hence disclosures are less costly (Al-Shammari et al. 2008) and thus I include firms' $Age_{(log)}$ (calculated by the year founded less the current year).

[113] For example, I add *Tab* which is one of the market risk disclosure formats that may create endogeneity problems for both *DMRD1* and *DMRD2*.

**Table 6.7 Sensitivity tests: Disaggregated Market Risk Disclosures, Audit Conservatism and Implied Cost of Equity Capital using firm's specific measures:**

| | Model 1:DMRD1$_t$ | | Model 2:DMRD2$_t$ | | Model 3:No_Risk$_t$ | |
|---|---|---|---|---|---|---|
| | $r^0_{ES-\text{pool}}$ | | $r^0_{ES-\text{pool}}$ | | $r^0_{ES-\text{pool}}$ | |
| | AuditCons$_{B4=1}$ | AuditCons$_{B4=0}$ | AuditCons$_{B4}$ | AuditCons$_{B4=0}$ | AuditCons$_{B4=1}$ | AuditCons$_{B4=0}$ |
| **Intercept** | 6.138*** | 1.447*** | 6.093*** | 1.462*** | 6.480*** | 1.454*** |
| | (10.609) | (3.674) | (10.575) | (3.755) | (10.925) | (3.378) |
| **DMRD** | **-0.007*** ** | 0.001 | **-0.011*** ** | 0.001 | **-0.018*** | 0.001 |
| | (-2.672) | (1.127) | (-3.139) | (0.755) | (-1.978) | (0.294) |
| **Beta** | 0.086*** | 0.003 | 0.088*** | 0.002 | 0.080** | 0.002 |
| | (2.757) | (0.092) | (2.877) | (0.074) | (2.510) | (0.055) |
| **Leverage** | 0.046 | -0.024 | 0.048 | -0.022 | 0.043 | -0.021 |
| | (1.234) | (-1.481) | (1.288) | (-1.467) | (1.126) | (-1.385) |
| **BM** | -0.011*** | -0.007* | -0.011*** | -0.008** | -0.011*** | -0.008** |
| | (-5.986) | (-2.004) | (-5.956) | (-2.075) | (-5.363) | (-2.120) |
| **Tab** | 0.010 | 0.005 | 0.012 | 0.005 | 0.012 | 0.006 |
| | (0.666) | (0.415) | (0.808) | (0.475) | (0.750) | (0.553) |
| **Firm CG** | 0.185*** | -0.000 | 0.181*** | -0.000 | 0.177*** | -0.002 |
| | (4.200) | (-0.019) | (4.112) | (-0.005) | (3.744) | (-0.057) |
| **Log(GDP )** | -0.221*** | -0.144*** | -0.220*** | -0.144*** | -0.234*** | -0.143*** |
| | (-9.700) | (-9.023) | (-9.654) | (-9.134) | (-10.100) | (-8.275) |
| **GovFactor** | -0.242*** | -1.430*** | -0.239*** | -1.428*** | -0.244*** | -1.426*** |
| | (-7.748) | (-38.281) | (-7.632) | (-39.455) | (-7.768) | (-39.572) |
| **HML** | -0.048*** | 0.005*** | -0.047*** | 0.005*** | -0.048*** | 0.005*** |
| | (-12.325) | (50.774) | (-12.184) | (52.072) | (-12.342) | (52.123) |
| **SMB** | -0.000 | 0.000*** | -0.000 | 0.000*** | -0.000 | 0.000*** |
| | (-1.563) | (10.605) | (-1.543) | (10.767) | (-1.535) | (9.975) |
| **Year & Industry FX** | Yes | Yes | Yes | Yes | Yes | Yes |
| **Firm *Robust/Cluster*** | Yes | Yes | Yes | Yes | Yes | Yes |
| **N** | 407 | 181 | 407 | 181 | 407 | 181 |
| **Adj. R-sq** | 62.7% | 92.8% | 62.9% | 92.8% | 62.5% | 92.8% |

*, **, and *** denote significance at 10%, 5% and 1% respectively.
Robust *t*-values in parentheses
The variable definitions are in *Appendix C.*

I am also motivated by (Leuz and Verrecchia 2000) and (Barton and Waymire 2004) to include *Tang* (PPE scaled by total assets) as an instrumental variable for disclosure. In addition, Terjesen et al. (2009) and Adams and Ferreira (2009) suggest that having a female director improves firms' governance level and also the allocation of more monitoring effort as harder questions are asked within the board with the presence of at least one female director; therefore, I include female director *(FemaleMem)* as an instrument that correlates with disaggregation disclosures. Finally, for firms with more hedging activities that have more market risk exposures to disclose (Lin et al. 2008; DeMarzo and Duffie 1995), I add a dummy variable of 1 if the firm supplements their market risk exposures in the annual report with hedging disclosures *(HD)*; otherwise 0.

I also supplement the theoretical link with several econometric post-estimation checks by: (i) testing the productivity power of the instruments; (ii) the weak instrument test; (iii) the under-identification test; (iv) the over-identification test; and (v) the Durbin–Wu–Hausman test to determine the validity and appropriateness of instrumental variables in comparison to the OLS estimator for all pool main regressions. To assess whether a weak instrument is a problem, I report robust F-statistics and partial $R^2$, Shea's partial $R^2$ and p-value[114] (for detailed discussion, see (Murray 2006). The reported F-statistics in Table 6.8 for the four instruments is higher than the benchmark suggested by Stock et al. (2002).[115] As the first-stage partial F-statistics ($R^2$) are above (below) the critical values, the instruments are considered not to be weak (strong), and there is no potential inference problem in the analysis. I report on Kleibergen–Paap LM statistics and the Wald F-statistic for under-identification and weak-identification. The results show that the F-statistic is higher than the Stock et al. (2002) benchmark. For example, based on the 10% maximal instrumental

[114] For the weak instrument test, if the F-statistic is lower than 10 (the rule of thumb) and the partial $R^2$ is lower than 0.05%, this indicates the exclusion effects of the instruments as a percentage.
[115] Stock et al. (2002) weak instrument benchmarks test the F-statistic. If the number of instruments is 1, 2, 3, 5 and 10, the suggested critical F-values are 8.96, 11.59, 12.83, 15.09 and 20.88, respectively.

variables (IV) size critical value "> *29.18*", rk Wald F-statistic for *DMRD1* is *80.5982* and for *DMRD2* is *71.595*. Then, I conduct the Hansen J statistic over-identified models test (i.e., use of the number of instruments that is more than the number of endogenous regressor) to determine the appropriateness of the instruments.[116]. The reported results show that in all the models, I do not reject the null hypothesis which also justifies the appropriateness of the instruments. I also perform the standard Durbin–Wu–Hausman test to justify the use of 2SLS rather than OLS results. I reject the null hypothesis that the specified endogenous regressor can actually be treated as exogenous, hence 2SLS provides robust results when testing the association between disaggregation in mandatory market risk disclosures and the ICOE. In addition, the coefficients are statistically stronger and more powerful at 0.01% level.

For clarity, I show the results for instrumental variables (IV) estimation in Table 6.8. In all models, the disaggregated mandatory risk disclosures are significantly negatively associated with the ICOE at the 0.01% level. This is consistent with the expectations as well as with the results from the main regression analysis. Furthermore, the un-tabulated results also show consistent evidence for all firm size classes for both *DMRD1* and *DMRD2*. The coefficients for *DMRD1* (small, medium and large) are *-0.0706****; *-0.0693* and *-0.0469****, and for *DMRD2* (small, medium and large) are *-0.0967****; *-0.0971* and *-0.0639****.

### 4.3.7. (a) Alternative implied cost of capital measures for firm-specific factors

As a robustness check, I also check whether the results are specific to the ICOE or to auditor conservatism. Therefore, I adopt additional three firm-specific measures: first,

[116] This test requires that at least one of the instruments be valid (Cameron and Pravin 2009)

**Table 6.8 Endogeneity tests:-**

| | Model 1: **DMRD1$_t$** | | Model 2: **DMRD2$_t$** | |
|---|---|---|---|---|
| | $r^0_{ES-\text{pool}}$ | | $r^0_{ES-\text{pool}}$ | |
| | First Stage | Second Stage | First Stage | Second Stage |
| Intercept | 6.447* | 2.092*** | 5.224* | 2.111*** |
| | (1.73) | (8.38) | (1.79) | (8.50) |
| **DMRD** | | -0.028*** | | -0.038*** |
| | | (-4.39) | | (-4.49) |
| All Variables in Main Specification | Yes | Yes | Yes | Yes |
| Year & Industry FX | Yes | Yes | Yes | Yes |
| Firm *Robust/Cluster* | Yes | Yes | Yes | Yes |
| **N** | 588 | 588 | 588 | 588 |
| **Instrumental Variables** | Coff. | t-statistic | Coff. | t-statistic |
| HD | 1.024** | (2.30) | 0.695** | (2.11) |
| Tang | -2.984*** | (-2.6) | -1.865** | (-2.14) |
| Age(log) | 0.364 | (1.60) | 0.232 | (1.31) |
| FemaleMem | 0.188 | 0.33 | 0.29 | (0.66) |
| No_Risk | 0.444** | (2.06) | 0.371** | (2.23) |
| No_QulRisk | 11.892*** | 7.5 | 8.735*** | (7.11) |
| Intercept | 6.447* | (1.73) | 5.224* | (1.79) |
| **Post-estimations Tests for Instrumental Variables:** | | | | |
| ***1-Predictive power Partial R2*** | | | | |
| Partial R2 & Shea | **0.3921** | | **0.3799** | |
| Robus F-test | 26.26 | | 24.18 | |
| P-vlaue | 0.000 | | 0.000 | |
| ***2- Underindenificaiton test*** | **160.9** | | | |
| Kleibergen-Paap rk LM statistic | 0.000 | | **151.886** | |
| P-value | | | 0.000 | |
| ***3- Weak Indentification test*** | **80.598** | | | |
| *Kleibergen-Paap rk Wald F statistic* | 29.18 | | **71.595** | |
| *10% maximal IV size* | | | 29.18 | |
| ***4- Overidentification test*** | 6.91 | | | |
| *Hansen J statistic* | **0.2274** | | 6.985 | |
| *Chi-sq(6) P-val* | **160.9** | | **0.2218** | |
| ***5-Endogeneity test*** | | | | |
| *Durbin-Wu-Hausman tests* | | 5.615 | | 3.156 |
| *Chi-sq(1) P-val* | | **0.0178** | | **0.0757** |

HD is firm has hedging in market risk disclosures, otherwise 0, Tang total PPE scaled by total asset, Age firm's age calculated the difference between year $_t$ – year of foundation; FemaleMem firm's board of directors with female directors 1, otherwise0, No_Risk is the number of market risk exposures in year $_t$; No_QulRisk is the scaled number of qualitative items in Appendix B divided on No_Risk in year $_t$.

using the abnormal growth model based on Easton (2004) and Ohlson and Juettner-Nauroth (2005); and, second, I adopt the PEG model that uses random walk earnings' forecasts based on (Bradshaw et al. 2012). In addition, I use a second proxy for auditor conservatism based on accrual quality based on (Kothari et al. 2005), thus using the following regression model:

$$r_{i,t} = a_0 + a_1 DMRD_{i,t} + a_2\ AudConservative_{i,t} + a_3 DMRD_{i,t} * AudConservative_{i,t} + a_4 Control\ Variables_{i,t} + \sum Year\ \&\ Industry + \varepsilon_{i,t}$$ *Eq.(15)*

I find that alternative measures for the ICOE and auditor conservatism provide consistent results. In all models, the coefficients of the main independent variables are significantly negative except for $r_{oj}$ for *DMRD2* for which the coefficient is negative but not significant. For Easton (2004) model, I find the coefficient of *DMRD1* is *-0.0212*** at 5% level and that of *DMRD2* is *-0.0280** at 10% level). For Ohlson and Juettner-Nauroth (2005) model, *DMRD1* is *-0.0229** at 10% level and *DMRD2* is *-0.023*: for the PEG model's random walk earnings' forecasts using (Bradshaw et al. 2012), the coefficient of *DMRD1* is *-0.0106*** at 0.10% level and for *DMRD2* is *-0.0168**** at 0.01% level). Furthermore, the coefficients for the interaction between the proxy for disaggregation disclosures *DMRD1 (DMRD2)* and earning quality (proxy for auditor conservatism) are all negative and only significant for $r_{peg}$, being *-0.0002**, (*-0.0026**); *-0.0001 (-0.0011)*; and *-0.0001 (-0.0014)*, respectively.

**4.3.7.(b) Using future realized earnings as expected earnings**

In addition, I repeat the calculation procedure, used in section 3.1, to obtain a second portfolio-specific ICOE using *future realized earnings* as the expected return to obtain 30 portfolios based on country and year that are calculated from 588 observations based on (Easton and Sommers 2007):

$$\frac{EPS_{t+1}}{B_t} = \delta_0 + \delta_1 \frac{P_t}{B_t} + \mu_t$$ *Eq. (16.1)*

Where $\delta_0 + \delta_1 = r_{ES}^1$, the ICOE based on future realized earnings can be obtained by estimating the firm portfolio at time *t* in country *j* consistent with Chen et al. (2010) and Bley and Saad (2012). Therefore, I regress the $r_{ES}^1$ with only portfolio measures, first with Fama and French (1996) factors and second with country $GDP_{(log)\ t,j}$ and country governance and investor protection level ($Factor_{\ t,j)}$ for country *j* at time *t*:

$$r^{0}_{ES_{t,j}} = a_0 + a_1 \sum_{t=5}(DMRD)_{t,j} + HML_{t,J} + SMB_{t,J} + GDP_{(log)t,J} + Factor_{t,J} + \varepsilon_{t,J}$$ *Eq. (16.2)*

$$r^{1}_{ES_{t,j}} = a_0 + a_1 \sum_{t=5}(DMRD)_{t,j} + HML_{t,J} + SMB_{t,J} + GDP_{(log)t,J} + Factor_{t,J} + \varepsilon_{t,J}$$ *Eq. (16.3)*

where mean $(DMRD)_{t,j}$ is the average firm's *DMRD* over five years for country *j* in year *t*; *HML* is high (book to market ratio) less low (book to market ratio) for year *t* in country *j*; *SMB* is small (market capitalization) less big (market capitalization) in year *t* for country *j*. Table 6.9 shows that even when I run regressions with portfolio-specific factors (excluding firm-level factors), I find a negative and significant association between disaggregation in mandatory market risk disclosures and the ICOE for current realized earnings $r^{0}_{ES_{t,j}}$ and it is also negative for future realized earnings $r^{1}_{ES_{t,j}}$. This suggests that my results are consistent even after excluding firm-specific factors.

**Table 6.9 Sensitivity tests: Disaggregated Market Risk Disclosures and Implied Cost of Equity Capital on portfolio based using (Fama and French 1996) Factors:**

| | $r^{0}_{ES-\text{pool}}$ | | $r^{0}_{ES-\text{pool}}$ | |
|---|---|---|---|---|
| **Intercept** | 1.152*** | 1.216*** | 47.775*** | 47.591*** |
| | (5.173) | (5.3) | (5.02) | (5.04) |
| **DMRD1** | -0.010** | | -0.025 | |
| | (-2.43) | | (-0.16) | |
| **DMRD2** | | -0.018*** | | -0.018 |
| | | (-3.08) | | (-0.09) |
| **HML** | -0.001*** | -0.001*** | -0.009 | -0.009 |
| | (-4.57) | (-4.56) | (-1.45) | (-1.44) |
| **SMB** | -0.000** | -0.000** | -0.000*** | -0.000*** |
| | (-2.39) | (-2.41) | (-4.02) | (-4.04) |
| **Log(GDP )** | -0.040*** | -0.041*** | -1.577*** | -1.574*** |
| | (-4.79) | (-4.88) | (-4.65) | (-4.64) |
| **GovFactor** | -0.089*** | -0.088*** | -0.137 | -0.142 |
| | (-4.06) | (-4.02) | (-0.22) | (-0.23) |
| **Year & Industry FX** | Yes | Yes | Yes | Yes |
| **Firm *Robust/Cluster*** | Yes | Yes | Yes | Yes |
| **Adj. R-sq** | 24.3% | 25.2% | 23.9% | 23.9% |

$r^{1}_{ES}$is the implied cost of equity for portfolio based on Easton and Sommers (2007) based on 588 year observations based on future realized earnings.

### 4.3.8 Additional analysis: Royal family members

Chen et al. (2011c) find that the presence of a quality auditor in stated-owned firms reduces the cost of equity capital. Given the high representation of royal family members on the board of GCC-listed firms, I follow Chen et al. (2011c) by interaction with disaggregation, first, with firms with non-royal family board members and, second, with firms without royal family member board members but with auditor conservatism. The prior studies (e.g., Boubakri et al. 2012) provide evidence that political connections reduce the cost of capital due to increased information asymmetry (Chaney et al. 2011). In this test, I assume that the presence of a conservative auditor in firms not connected to royal family members will reduce information asymmetry by making more accurate disaggregation. I find that the interaction between disaggregation in firms in the presence of a royal family board member has a positive impact $\beta_4$ on the ICOE. In addition, I find that the interaction between disaggregation firms in the presence of a conservative auditor but without royal family board members has a negative impact on the ICOE, all of which are significant at $p < 0.01$ level. I then re-test, as shown on Table 6.10, using discretionary accrual (Kothari et al. 2005) and find similar evidence.

## 5. CHAPTER SUMMARY

I examine the impact of disaggregation in mandatory market risk disclosures on the implied cost of equity capital (ICOE) of GCC firms. I find that disaggregation in mandatory market risk disclosures has a significant and negative impact on the ICOE. In addition, I find that the existence of a conservative auditor magnifies the negative association between the disaggregation of market risk disclosures and the ICOE. My results are robust using alternative measures for the ICOE for firm-specific models, several measures of disaggregation proxies, different sampling models and the endogeneity test. Unlike prior

studies, this study adopts a portfolio-specific model based on firms' realized earnings after controlling for firm-level factors, following the approach by used by (Easton 2006).

**Table 6.10: Association between Disaggregation, Audit Conservatism, Non-Royal family, and ICOE**

| ***Dependent Variable*** | $r^{0}_{ES-\text{pool}}$ | $r^{0}_{ES-\text{pool}}$ |
|---|---|---|
| ***Independent Variable*** | **Model:** DMRD1 | **Model2:** DMRD2 |
| **Intercept** | -0.353*** | -0.337*** |
| | (-4.54) | (-4.33) |
| **DMRD** | -0.017** | -0.026*** |
| | (-2.41) | (-2.83) |
| AudCons | 0.564*** | 0.544*** |
| | (10.023) | (9.89) |
| DMRD * AudCons | -0.006* | -0.026*** |
| | (-1.707) | (-2.83) |
| Non-Royal | -0.150** | -0.166*** |
| | (-2.44) | (-2.71) |
| DMRD * Non-Royal | 0.023*** | 0.033*** |
| | (3.07) | (3.43) |
| Non-Royal * AudCons | -0.201*** | -0.188*** |
| | (-5.00) | (-4.55) |
| All Variables in Main Specification | Yes | Yes |
| Year FX | Yes | Yes |
| Firm *Robust/Cluster* | Yes | Yes |
| N-Obs. | 588 | 588 |
| Adj. R-sq | 46.50% | 47.1% |

Non-Royal is firm's is not politically connected by royal family member.
*, **, and *** denote significance at 10%, 5% and 1% respectively.
Robust *t*-values in parentheses

This study is important for several reasons. First, it furnishes unique evidence of the significant role that auditor conservatism plays in reducing uncertainty and increasing confidence relating to disclosed market risk information. In fact, when market risk information is devolved into its components, the existence of a conservative auditor enhances the informativeness of those market risk disclosures to the extent that it magnifies the negative relation between disaggregated disclosures and the ICOE. As far as I am aware, this is the first study that has examined the association between disaggregated market risk disclosures, cost of capital and auditor conservatism. Second, this study extends other recent studies that have examined the benefits of disaggregated disclosures relating to earnings (see e.g., Venter et al. 2013). Third, this study provides a testable methodology for researchers intending to investigate the implied cost of capital (ICC) in the GCC region, where firms are

less frequently followed and covered by financial analysts, by adopting the ICOE for portfolio-specific measures using firm-specific measures based on realized earnings.

# CHAPTER 7

# CONCLUSION

## 1. INTRODUCTION

In this thesis, empirical examination of the determinants and consequences on market risk disclosures are undertaken. I test three objectives: The first objective of this thesis is to test the association between the existence of a board risk sub-committee and the extent of market risk disclosures *(Chapter 4)*. The second objective of this thesis is to examine the impact of discretion in mandatory market risk disclosures on firm investment efficiency *(Chapter 5)*. The third objective is to investigate the impact of firm's disaggregation in mandatory market risk disclosures and audit conservatism on the implied cost of capital *(Chapter 6).* The analyses in this study are based on a unique hand collected dataset of financial firms belonging to six GCC countries, spanning a five year time period. *Section 2* discusses the summary of the findings from empirical analyses while *Section 3* provides the contribution of this research. Finally, *Section 4* provides possible future areas of study and provides an account of the implications of this study.

## 2. SUMMARY OF FINDINGS

The three aspects examined in this study are presented in Chapters Four, Five and Six. The first objective (*Chapter 4*) investigates that whether or not a separate RC can improve the extent and quality of risk disclosures. Prior studies in developed markets suggest that the typical audit committee (AC) is inadequate for managing financial and non-financial risks relating to complex and high-risk environments specifically those typical of the GCC countries. Since an RC concentrates on and specializes in risk oversight and risk management, I hypothesize that the RC may strengthen a firm's risk management system

which ultimately leads to an improvement in firm's risk reporting. A stand-alone RC is found to be a significant factor that improves both the extent and quality of market risk disclosures. This result is unchanged even after estimating the analysis using a panel regression model (fixed and random effects). I also undertake the Heckman (1978) model to control for any possible endogeneity. The results remain unaffected in that the existence of a RC increases both extent and quality of market risk disclosures. The characteristics of the RC are then analysed to ascertain which key determinants of market risk disclosures are. Both size and qualification of RC members are important determinants in enhancing the extent and quality of market risk disclosures. As an additional test, I also test the impact of RC on market risk disclosures depending on firm life cycle. I find that the existence of a RC is a significant determinant of market risk disclosures in the mature-stage of a firm's life cycle as compared to the introduction stage. This result is robust using various measures of life cycle and after fixing the effects of country, year, industry and market risk methods.

As part of objective 3 (*Chapter 5*), I investigate the impact of discretion in mandatory market risk disclosures of financial firms on that firm's investment efficiency. I argue that discretion in market risk disclosures provides more precise market risk information relating to firms' exposures, which in turn improves investment efficiency by reducing the extent of information asymmetry and moral hazard issues. I find that firms with more discretion in mandatory market risk disclosures have more efficient investments. In particularly, discretion in mandatory market risk disclosures reduces over and under investment of the firm. These results are robust even after conducting two-stage OLS regression which provides consistent results with the base regression model. I also test the mandatory and voluntary disclosure interaction models of (Einhorn 2005; Gigler 1994; Jorgensen and Kirschenheiter 2003). More discretion in mandatory disclosures reduces

firms' level of voluntary disclosures. Firms decide to voluntarily disclose in order to increase the precision of their mandatory disclosures. Consistently, I find that the interaction between discretion in mandatory market risk disclosures and voluntary disclosures reduces over and under investment. These results are consistent using different investment models after controlling for country and firm-specific factors.

In objective 3 (*Chapter 6*), I examine the association between the disaggregation of mandatory market risk disclosures and the implied cost of capital. Disaggregated information is considered to provide investors more information regarding private activities. Hence, it is expected that disaggregation in risk disclosures reduces the information asymmetry among investors, and thus reduces the implied cost of equity capital. Consistent with theory, I find that disaggregation in market risk disclosures reduces the implied cost of capital. This chapter tests the interaction between auditor conservatism and disaggregation of disclosures on the implied cost of capital. I also find that firms audited by a conservative auditor provide disaggregated disclosures, and hence provide a greater reduction in the implied cost of capital. This result is robust using different measures of the cost of capital, disaggregation of market risk disclosures, and auditor conservatism. In all regression models, I control for firm and country level factors, and industry and year dummy variables.

## 3. CONTRIBUTION

This study makes several contributions to the literature on market risk disclosures, and corporate governance. First, the best of my knowledge, this is the first study that investigates board risk management committees and the quality and extent of firm risk disclosures. Prior studies provide evidence that audit committee characteristics improve the extent of disclosures. The question of whether the voluntary formation of risk

committee can improve market risk disclosures has not been examined. In this thesis, I explicitly examine this association and thus, I shed light on an aspect of reporting which is growing in importance. Second, I extend the findings of prior studies in that firm size is found to one of the more important determinants of risk disclosure, consistent with the findings of prior studies. The results show that a stand-alone risk committee plays a more significant role in enhancing market risk disclosures of mature-stage firms than that of young-stage firms.

Third, this study examines the impact of discretion in mandatory risk disclosure on investment efficiency. Prior literature investigates the association between financial reporting quality and investment efficiency, and to the best of my knowledge, there has been negligible research investigating the association between discretion in mandatory risk disclosures and investment efficiency. I show that discretion in mandatory risk disclosures provides investors with credible information which reduces uncertainty and improves managerial decision-making.

Fourth, prior research examined disaggregation in mandatory earnings, special items, expenses and segment reporting, while this study extends the prior literature by providing evidence on the consequences of the disaggregation of mandatory market risk disclosures on the implied cost of capital. Fifth, whilst in most emerging markets, most stocks rarely receive any analyst coverage and few analyst recommendations in the GCC which reduces firm-specific earnings' forecasts, I provide an approach for determining the implied cost of capital using a firm-specific realized earnings model by adopting the simultaneous portfolio measure of (Easton and Sommers 2007).

Sixth, while prior research provides empirical evidence of investment efficiency, implied cost of equity capital, and market risk disclosures in developed markets (e.g. U.S.) and in emerging Asian markets (e.g. China), there is far less research that focuses

on emerging markets from the GCC. In this thesis, I investigate the determinants and consequence of market risk disclosures in six GCC countries characterized by low level of disclosure, weak enforcement regimes and lower investor protection. Finally, although investment efficiency and implied cost of capital of non-financial firms has been tested in prior studies, there is a lack of empirical evidence of both investment efficiency and implied cost of capital of financial firms. This thesis uses a sample of financial firms consisting of banks, financial, insurance and investment firms.

## 4. FUTURE IMPLICATIONS

First, this thesis will be of interest to academics and researchers as the development of the theories, hypotheses and analysis in this thesis related to market risk disclosures also will be applicable for future research. Researcher may test management's incentive to disclose discretionary information under mandatory disclosure regime. Future research could investigate the relation between political connection and discretion in mandatory risk disclosures, specifically in emerging countries such as the GCC where the politicians intervene in most business transactions. Furthermore, disaggregation of mandatory risk disclosures is one of the effective ways that firms utilise to reveal the private information to investors; hence less informed investors can offset the better informed investor, which may has implication to capital providers. Future research may test the association between disaggregation in mandatory disclosure and firms' stock crash. In addition, this study suggests that the risk management at the board level plays a significant role in enhancing the level and quality of market risk disclosures. The findings also indicate the recent corporate governance structures, practices and codes do not appear to be sufficient in improving firm's risk reporting, specifically in younger firms. Regulatory authorities may well be interested in reviewing the rules governing the risk reporting in the GCC

countries. The voluntary formation of board risk management committee suggests that the larger firms are able to form a stand-alone risk committee, hence smaller firms disclose less. Mandating internal governance practices such as requiring the formation of a risk management committee is a matter currently under consideration by GCC regulatory bodies.

## Appendix A: List of Items Examined in Constructing Mandatory & Discretionary Market Risk Disclosures Index

| Value at Risk (VaR) Index: Qualitative Items | Sources | Sensitivity Analysis (Sen): Qualitative Items | Sources |
|---|---|---|---|
| a. Effect of VaR on cash flow/ fair value/earning (**M )** | IFRS 7: Paragraph 18-40a, FRR. 48:*305(a):* 1F | a. Effect of Sen on cash flow/ fair value/earning (**M )** | IFRS 7: Paragraph 18-40a, FRR. 48:*305(a):* 1F |
| b. Two or more VaR effects on cash flow/fair value/earning (**V)** | IFRS 7: Paragraph 18-40a, FRR. 48:*305(a):* 1F | b. Two or more Sen effects on cash flow/fair value/earning (**V)** | IFRS 7: Paragraph 18-40a, FRR. 48:*305(a):* 1F |
| c. Objective of risk management ( **M)** | IFRS 7: Paragraph 18-40a | c. Objective of risk management ( **M)** | IFRS 7: Paragraph 18-40a |
| d. Policies of risk management ( **M)** | IFRS 7: Paragraph 33, FRR .48 305 (a)(1) | d. Policies of risk management ( **M)** | IFRS 7: Paragraph 33, FRR .48 305 (a)(1) |
| e. Limitations of risk management (**M)** | IFRS 7: 41 C | e. Limitations of risk management (**M)** | IFRS 7: 41 C |
| f. Other risk exposure except for interest rate, currency and price risk (**V)** | | f. Other risk exposure except for interest rate, currency and price risk (**V)** | |
| g. Disclosure of gain from VaR (**V)** | IFRS 7: Paragraph 25: B20 | g. Disclosure of gain from Sen (**V)** | IFRS 7: Paragraph 25: B20 |
| h. Non-trading market risk (**V)** | IFRS 7: Paragraph 20 | h. Non-trading market risk (**V)** | IFRS 7: Paragraph 20 |
| i. Immaterial market risk exposure (**V)** | IFRS 7: Paragraph 17-40a | i. Immaterial market risk exposure (**V)** | IFRS 7: Paragraph 17-40a |
| j. Risk target of the firm (**V)** | IFRS 7: Paragraph 40 | j. Risk target of the firm (**V)** | IFRS 7: Paragraph 40 |
| k. Other stress testing (**V)** | Basel II | k. Other stress testing (**V)** | Basel II |
| l. Qualitative description of stress test (**V)** | IFRS 7: Paragraph 19-20 & 19-a, FRR. 48: *305(a):* 1 A-D & Basel II | l. Qualitative description of stress test (**V)** | IFRS 7: Paragraph 19- 20 & 19-a, FRR. 48: *305(a):* 1 A-D & Basel II |
| m. Stress test result (**V)** | IFRS B19 B | m. Stress test result (**V)** | IFRS B19 B |
| n. Near term risk exposure (**M)** | FRR. 48 305(a) 4.a and IFRS B19 B | n. Near term risk exposure (**M)** | FRR. 48 305(a) 4.a and IFRS B19 B |
| **Qualitative Score: 14 points** | | **Qualitative Score: 14 points** | |
| **Quantitative Index for each Interest Rate, Foreign Exchange, Equity Price and other commodity price** | | **Quantitative Index for each Interest Rate, Foreign Exchange, Equity Price and other commodity price** | |
| **1-VaR Characteristics** | | **1-Sen Characteristics** | |
| a. Holding period under VaR (**M)** | IFRS: B20, Basel & FRR. 48 305(a)(1)(iii): C | a. Potential loss => 10% (**M)** | IFRS 7: B19a, B18b & FRR. 48 305(a)(1)(ii) |
| b. Confidence level (e.g., 99%, 95%) (**M)** | IFRS: B20, Basel & FRR. 48 305(a)(1)(iii): C | b. Potential loss <10% (**V)** | |
| c. Type of VaR model (**M)** | IFRS: B20 | c. Economic Justification for <10% (**V)** | |
| d. Data time frame (**M)** | IFRS: B20, Basel & FRR. 48305 A (i),(i) a | d. Multi Scenarios ( 10% and 20%) or (100, 200 points) (**V)** | |
| **2-VaR Statistics: Summary** | | **2-Sen Statistics : Summary** | |
| a. Annual average VaR (**V)** | FRR. 48 305 a 1(iii) (A) | a. Annual Ave. Sen over the year (**V)** | |
| b. Minimum VaR over the year (**V)** | FRR. 48 305 a 1(iii) (A) | b. Minimum Sen over the year (**V)** | IFRS 7 B19a+ B19b |
| c. Maximum VaR over the year (**V)** | FRR. 48 305 a 1(iii) (A) | c. Maximum Sen over the year (**V)** | |
| d. Year-end VaR (**M)** | IFRS: B20, FRR. 48 305 a 1(iii) (A) | d. Period indication for Ave., Max and Min Sen (**M)** | |
| e. Diversification effect (**V)** | FRR. 48: *305(a):* 1 E | e. Individual exposure in the risk type (e.g., all currencies) (**V)** | |
| **3-VaR Inter-temporal Comparison** | | **3-Sen Inter-temporal Comparison** | |
| a. Summary information about the previous Years' VaR (**M)** | IFRS: B20, FRR. 48: 305 a 3 a (1) i | a. Summary information about previous Year' Sen (**M)** | |
| **4-VaR Back-testing** | | b & c. change in Sen from % to Point or Point to %** (**V)** | IFRS 7 C9: 36A & Holder 2002 |
| a. Number of exceptions (**V)** | Basel II | d. Justification for the change from % to point or vice versa (**V)** | |
| b. Explanation of Exceptions (**V)** | Basel II | | |
| **5-Graphical presentation of daily VaR** | | | |
| a &b. Histogram of daily VaRs and/or plot of daily VaRs* (**V)** | Basel II | | |
| **Quantitative Score: 14 points for each market risk exposure.** | | **Quantitative Score: 13 points for each market risk exposure** | |
| Total VaR Score: 28 Points | | Total Sen Score: 27 points | |
| M and V denote mandatory (based on IFRS 7) and voluntary disclosure respectively | | | |

* Score of 1 if Histogram of Daily VaR is disclosed or score of 2 if both histogram and plot are disclosed

** Score of 1 if firm changes Sen figures from % to point or vice versa or score of 2 if both % and point changes are disclosed.

***Notes:***

1. In addition to basic *VaR characteristics* (holding period and confidence interval) my disclosure index considers disclosures of the VaR models and time frame used to calculate the models. *Sen Characteristics* considers the hypothetical change (e.g., greater or less than 10%), or economic justification for less than 10% change and multi scenario sensitivity analysis.

2. Year-end figure is the most updated number; however, this number may be subject to manipulation. Hence I consider the average, maximum and minimum VaR over the year. I also consider diversification effects. Perignon and Smith (2010b) suggest that firms usually report high level of VaR due to less consideration for diversification. I repeat this procedure for Sen. I include disaggregation of individual exposure in the risk type (e.g., disaggregation of foreign currency exposures). Disaggregation of risk exposures will allow users to discount the market risk exposures (Holdder 2000).

3. Inter-temporal Comparison is included in index aiming to signal whether VaR estimates of current year changes from that of previous year. This help the investors to understand firm's market risk trends and risk management position over the years. For Sen disclosure,I incorporate detailed inter-temporal comparison over the years.

4. Back-testing compares the actual losses that exceed the reported VaR exceptions in specified confidence level (Jorion 2007), which aid in estimating the accuracy of the forecasted VaR figures.

5. Graphical presentation of VaR shows the daily trend of VaR figures. Daily VaR histogram allow users to assess its level and time-series properties Perignon and Smith (2010b). VaR plots help the user to detect any exceptions.

In overall, indices go beyond SEC Financial Reporting Release No. 48 (FRR 48) and Basel II requirement on market risk disclosures. The adoption of IFRS 7 allows for discretion in several market risk disclosures. For example, for Sen, the hypothetical change (%) is specified at 10% under SEC FRR. 48, however, IFRS 7 does not require any specific hypothetical change, unless the firm assumes the change is reasonable.

**Appendix A- Supplementary 1: Qualitative Scores**

| Item | a | b | c | d | e | f | g | h | i | j | k | l | m | n | Sum |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2007** | 109 | 71 | 84 | 114 | 12 | 24 | 0 | 37 | 31 | 24 | 24 | 13 | 6 | 4 | 553 |
| **2008** | 120 | 73 | 95 | 121 | 14 | 29 | 0 | 41 | 35 | 39 | 29 | 17 | 6 | 3 | 622 |
| **2009** | 121 | 86 | 95 | 127 | 13 | 30 | 3 | 40 | 32 | 46 | 33 | 20 | 6 | 6 | 658 |
| **2010** | 126 | 85 | 95 | 128 | 14 | 28 | 4 | 39 | 31 | 46 | 34 | 22 | 7 | 6 | 665 |
| **2011** | 123 | 84 | 95 | 125 | 13 | 29 | 4 | 39 | 33 | 45 | 33 | 21 | 7 | 6 | 657 |

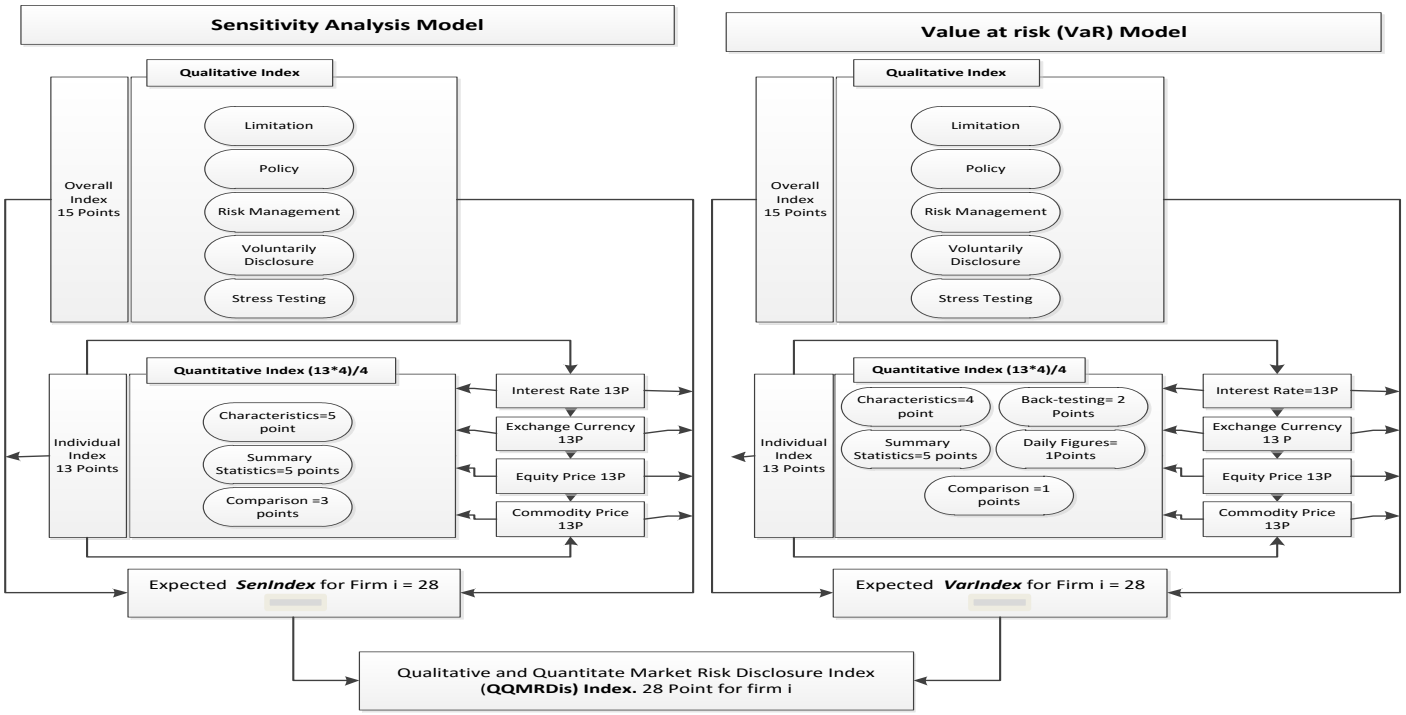
**Appendix A- Supplementary 2: Quantitative Value-at-Risk (VaR) Scores**

| Item | a1 | b1 | c1 | d1 | a2 | b2 | c2 | d2 | a3 | b&c3 | d3 | Sum |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2007** | 72 | 133 | 34 | 18 | 3 | 2 | 5 | 96 | 164 | 5 | 0 | 532 |
| **2008** | 93 | 151 | 42 | 28 | 4 | 4 | 7 | 122 | 211 | 5 | 0 | 667 |
| **2009** | 100 | 155 | 40 | 29 | 4 | 4 | 6 | 129 | 225 | 6 | 0 | 698 |
| **2010** | 104 | 159 | 41 | 28 | 4 | 5 | 7 | 130 | 230 | 9 | 0 | 717 |
| **2011** | 101 | 153 | 39 | 26 | 4 | 5 | 6 | 128 | 224 | 8 | 0 | 694 |

**Appendix A- Supplementary 3: Quantitative Sensitivity Analysis (Sen) Scores**

| Item | a1 | b1 | c1 | d1 | a | b | c | d | e | a3 | a4 | b4 | a&b5 | Sum |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2007** | 32 | 30 | 27 | 32 | 16 | 10 | 10 | 21 | 6 | 22 | 4 | 3 | 1 | 214 |
| **2008** | 34 | 32 | 29 | 34 | 18 | 13 | 13 | 25 | 6 | 22 | 5 | 3 | 1 | 235 |
| **2009** | 28 | 26 | 20 | 27 | 13 | 11 | 11 | 20 | 5 | 15 | 8 | 3 | 2 | 189 |
| **2010** | 31 | 28 | 20 | 27 | 15 | 13 | 13 | 20 | 5 | 16 | 8 | 3 | 0 | 199 |
| **2011** | 31 | 28 | 20 | 27 | 15 | 13 | 13 | 20 | 5 | 16 | 10 | 3 | 0 | 201 |

**Appendix A- Supplementary 4: Graphical presentation for Mandatory & Discretionary Market Risk Disclosures Index Scoring Process**




**Appendix B: Un-weighted index of corporate governance**

**Board Composition**

1-Independence: Majority of Independent Directors
2-Extern-Directorship: Firm cross-directorship board member
3-Inter-Directorship : Duality of chairperson with more than one Committee
4-Duality of CEO/Chairman: CEO and Chairperson

**Risk Committee**

5- Risk committee chaired by Independent Director
6-At least one of the Risk Committee member director has Finance background
7-Size of the Risk Committee (1 if firms size greater than median size)
8 Majority of Independent member of Risk Committee

**Remuneration & Compensation Committee**

9-Remuneration Committee chaired by Independent Director
10-Size of Remuneration Committee (1 if firms size greater than median size)
11-Majority of Independent member of Remuneration Committee

**Audit Committee**

12- At least one of the Audit Committee member has Finance background (AuditComQul)
13- Audit committee chaired by Independent Director (AudiInd)
14- Size of the Audit Committee
15- Majority of Independent member of Audit Committee

**Total CGs : 15 Items**

**Appendix C: Variable Definition and Measurement**

| Variables | = | Definition and Measurement |
|---|---|---|
| | | **The implied cost of capital Variable** |
| $r_{ES}^{0}$ | | The implied cost of equity for portfolio based on Easton and Sommers (2007). |
| | | **Disclosure Proxies (Appendix A)** |
| EMRD | | The extent of market risk disclosures. "Objective 1" |
| DMRD1 | | Discretion in mandatory market risk disclosures based on risk coverage which measure the quality of disclosure. "Objective 2" |
| | | The disaggregated mandatory market risk disclosures based on risk coverage which measures the quality of disclosure. "Objective 3" |
| QMRD | | The quality of market risk disclosures. "Objective 1" |
| DMRD2 | | Discretion in mandatory market risk disclosures scaled by maximum expected score, which reflects the extent of disclosures. "Objective 2" |
| | | The disaggregated mandatory market risk disclosures scaled by maximum |

| | |
|---|---|
| | expected score as measure on the extent for disclosures. "Objective 3" |
| **Audit Conservatism Proxies** | |
| $AudCons_{Kothri}$ | conservative auditor based on firm's Financial Reporting Quality (FRQ) using (Kothari et al. 2005) |
| $AudCons_{Jones}$ | conservative auditor based on FRQ using (Jones 1991) |
| $AudCons_{B4}$ | Firm is audited by two auditors and at least of them from Big 4. |
| **Investment Efficiency Variables** | |
| Investment (U & O) | (Property, Plant and Equipment – Depreciation – Sale of Asset) / Lagged Asset. Average of cash and leverage to rank firms on their likelihood of over- and under-investment, Under invest if investment under the average of cash and leverage and Over invest if investment over the average of cash and leverage. |
| Residual (U& O) | Estimated from equation 2: Negative residuals are considered under investment and positive residuals are considered over investment. |
| **Risk Committee (RC) and Characteristics Variables** | |
| RC_D | Dummy variable that takes on the value of 1 if the firm has dedicated risk committee, 0 otherwise. |
| Factor_RC | Eigenvalue obtained from three RC characteristics (RC_Independence, RC_Qualification & RC_Size). |
| RC_Independence | Dummy variable that takes on the value of 1 if majority of RC director are independent, 0 otherwise. |
| RC_Qualification | Dummy variable that takes on the value of 1 if at least one director in RC has academic and professional degree in accounting/finance, 0 otherwise. |
| RC_Size | The number of directors in RC. |
| **Control Variables** | |
| Beta t | Firm's beta for at least of twelve months. |
| Leverage t | Total short & long term liabilities divided on total asset. |
| BM t | Growth measures calculated based on total book value divided on total market value of firm's outstanding shares value at the end of last month (March) after the release of the firm's annual reports. |
| Tab t | The disclosed tabulation format for firm I equal 1 if firm disclose otherwise 0. |
| Firm_CG1 | Firm level corporate governance index of three dichotomous items that covers independent of BOD, duality of CEO/Chairman, and firm's director with outside directorship seat. |
| Firm CG2 t | Sum score of firm level corporate governance consists of 12 attributes scaled by Total expected items (Appendix B) |

| | |
|---|---|
| GDP t(log) | The total Gross Domestic Products for country I in t year |
| GovFactor | Factor analysis of country investor protection index (which covers extent of director liability and ease of shareholders' suit directors and managers) and country level governance (which covers regulatory quality and control of corruption). |
| McapDev | Market development, measured as total stock market capitalization of each country divided by total Gross Domestic Products (GDP) in year t. |
| Size (asset) | Natural logarithm of total assets. |
| HML | High minus Low portfolios size based on (Fama and French 1996). |
| SMB | Small minus Big portfolios size based on (Fama and French 1996). |
| ROE | Firm's Return on Equity. |
| Slack | Slack of the firm, measured as total cash scaled by lagged total asset. |
| Age | Natural Log of age of the firm, measured as the log of the difference between current year and year of establishment of the firm. |
| Tab | Dummy variable for Tabular formats, which takes a value of 1 if firm disclose tabular format, 0 otherwise. |
| VD | Proxy for voluntary disclosure, VD takes a value of 1 if Firms' EPS in current year is higher than that of previous year 1, 0 otherwise. |
| Big4 | Dummy variable that takes on the value of 1 if firm is audited by one of the big four auditors, 0 otherwise. |
| AC_Factor | Eigenvalue obtained from four Audit Committee (AC) characteristics (AC_Independence, AC_Qualification, AC_Size & AC_Chair Independence. |
| Family_Dir | Dummy variable that takes on the value of 1 if at least one director in the board represents family ownership,0 otherwise. |
| Gov_Dir | Dummy variable that takes on the value of 1 if at least one director in the board represents government (or one of its agencies) ownership, 0 otherwise. |

## TABLE REFERENCES


Abbott, L. J., S. Parker, and G. F. Peters. 2004. Audit committee characteristics and restatements. *Auditing: A Journal of Practice & Theory* 23 (1):69-87.

Abraham, S., and P. Cox. 2007. Analysing the determinants of narrative risk information in UK FTSE 100 annual reports. *The British Accounting Review* 39 (3):227-248.

Abu-Nassar, M., and B. A. Rutherford. 1996. External users of financial reports in less developed countries: the case of Jordan. *The British Accounting Review* 28 (1):73-87.

Adams, R. B., and D. Ferreira. 2009. Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics* 94 (2):291-309.

Admati, A. R., and P. Pfleiderer. 2000. Forcing firms to talk: financial disclosure regulation and externalities. *The Review of Financial Studies* 13 (3):479-519.

Aebi, V., G. Sabato, and M. Schmid. 2012. Risk management, corporate governance, and bank performance in the financial crisis. *Journal of Banking & Finance* 36 (12):3213-3226.

Agrawal, A., and S. Chadha. 2005. Corporate governance and accounting scandals. *Journal of Law and Economics* 48 (2):371-406.

Ahmed, A. S., A. Beatty, and B. Bettinghaus. 2004. Evidence on the efficacy of interest-rate risk disclosures by commercial banks. *The International Journal of Accounting* 39 (3):223-251.

Aivazian, V. A., Y. Ge, and J. Qiu. 2005. The impact of leverage on firm investment: Canadian evidence. *Journal of Corporate Finance* 11 (1):277-291.

Al-Ajmi, J., and J. H. Kim. 2012. Are Gulf stock markets efficient? Evidence from new multiple variance ratio tests. *Applied Economics* 44 (14):1737-1747.

Al-Janabi, M., A. Hatemi-J, and M. Irandoust. 2010. An empirical investigation of the informational efficiency of the GCC equity markets: Evidence from bootstrap simulation. *International Review of Financial Analysis* 19 (1):47-54.

Al-Qahtani, A. K. 2005. The development of accounting regulation in the GCC: Western hegemony or recognition of peculiarity? *Managerial Auditing Journal* 20 (3):217-226.

Al-Sehali, M., and N. Spear. 2004. The decision relevance and timeliness of accounting earnings in Saudi Arabia. *The International Journal of Accounting* 39 (2):197-217.
Al-Shammari, B., and W. Al-Sultan. 2010. Corporate governance and Voluntary disclosure in Kuwait. *International Journal of Disclosure and Governance,* 7 (3):262-280.
Al-Shammari, B., P. Brown, and A. Tarca. 2008. An investigation of compliance with international accounting standards by listed companies in the Gulf Co-Operation Council member states. *The International Journal of Accounting* 43 (4):425-447.
Al-Turki, K. H. 2006. Corporate governance in Saudi Arabia: overview and empirical investigation, Victoria University.
Al-Yahyaee, K. H., T. M. Pham, and T. S. Walter. 2011. The information content of cash dividend announcements in a unique environment. *Journal of Banking & Finance* 35 (3):606-612.
Al Farooque, O., T. Van Zijl, K. Dunstan, and A. Karim. 2007. Corporate governance in Bangladesh: link between ownership and financial performance. *Corporate Governance: An International Review* 15 (6):1453-1468.
Al Mutairi, M. E., and H. Hasan. 2010. The effect of corporate governance, corporate financing decision and ownership structure on firm performance: A panel data approach from kuwait stock exchange.*Working paper avairble online: http://ro.uow.edu.au/commpapers/1916/.*
Ali, A., T.-Y. Chen, and S. Radhakrishnan. 2007. Corporate disclosures by family firms. *Journal of Accounting and Economics* 44 (1):238-286.
Amihud, Y., and H. Mendelson. 1991. Liquidity, maturity, and the yields on US treasury securities. *The Journal of Finance* 46 (4):1411-1425.
Amran, A., A. M. R. Bin, and B. C. H. M. Hassan. 2008. Risk reporting: An exploratory study on risk management disclosure in Malaysian annual reports. *Managerial Auditing Journal* 24 (1):39-57.
Andres, P. d., and E. Vallelado. 2008. Corporate governance in banking: The role of the board of directors. *Journal of Banking & Finance* 32 (12):2570-2580.
Ariss, R. T., R. Rezvanian, and S. M. Mehdian. 2011. Calendar anomalies in the Gulf Cooperation Council stock markets. *Emerging Markets Review* 12 (3):293-307.
Armstrong, C. S., W. R. Guay, and J. P. Weber. 2010. The role of information and financial reporting in corporate governance and debt contracting. *Journal of Accounting and Economics* 50 (2-3):179-234.
Artiach, T. C., and P. M. Clarkson. 2011. Disclosure, conservatism and the cost of equity capital: A review of the foundation literature. *Accounting and Finance* 51 (1):2-49.
Bagehot, W. 1971. The only game in town. *Financial Analysts Journal* 27 (2):12-14.
Bali, T., and N. Cakici. 2004. Value at Risk & Expected Stock Returns. *Financial Analysts Journal* 60 (2):57-73.
Ball, R., A. Robin, and G. Sadka. 2008. Is financial reporting shaped by equity markets or by debt markets? An international study of timeliness and conservatism. *Review of Accounting Studies* 13 (2-3):168-205.
Balli, F., R. Balli, and M. Louis. 2011a. The patterns of cross-border portfolio investments in the GCC region: do institutional quality and the number of expatriates play a role? *Journal of Economics and Finance* 35 (4):434-455.
Balli, F., R. J. Louis, and M. Osman. 2011b. The patterns of cross-border portfolio investments in the GCC region: do institutional quality and the number of expatriates play a role? *Journal of Economics and Finance* 35 (4):434-455.
Banks, U. o. A. 2007. Survey results: Corporate governance survey of the Arab Banking Sector. Cairo: Union of Arab Banks.
Barakat, A., and K. Hussainey. 2013. Bank governance, regulation, supervision, and risk reporting: Evidence from operational risk disclosures in European banks. *International Review of Financial Analysis* 30:254-273.
Barclay, M. J., and C. G. Holderness. 1989. Private benefits from control of public corporations. *Journal of Financial Economics* 25 (2):371-395.
Barth, M. E., Y. Konchitchki, and W. R. Landsman. 2013. Cost of capital and earnings transparency. *Journal of Accounting and Economics*.

Barton, E., and G. Bodnar. 1994. Firm valuation, earnings expectations, & the exchange-rate exposure effect. *Journal of Finance* 49 (5): 1755-1785.
Barton, J., and G. Waymire. 2004. Investor protection under unregulated financial reporting. *Journal of Accounting and Economics* 38:65-116.
BCBS, B. C. o. B. S. 1999. Recommendations for public disclosure of derivatives activities of banks and securities firms." Joint report by the Basel committee on banking supervision and the technical committee of the international organization of securities commissions (IOSCO), edited by B. f. I. Settlements. Basel.
———. 2001. Public disclosures by banks: Results of the 1999 disclosure survey: Bank for International Settlements.
———. 2002. Public disclosures by banks: Results of the 1999 disclosure survey: Bank for International Settlements.
———. 2003. Public disclosures by banks: Results of the 1999 disclosure survey: Bank for International Settlements.
BDI, G. 2011. Embarking on a journey: A review of board effectiveness in the Gulf. Dubai: GCC board directors institue.
Beasley, M. S. 1996. An empirical analysis of the relation between the board of director composition and financial statement fraud. *The Accounting Review*:443-465.
Beasley, M. S., and S. E. Salterio. 2001. The Relationship between Board Characteristics and Voluntary Improvements in Audit Committee Composition and Experience. *Contemporary Accounting Research* 18 (4):539-570.
Beattie, V., A. Goodacre, and S. J. Thomson. 2006. International lease-accounting reform and economic consequences: The views of UK users and preparers. *The International Journal of Accounting* 41 (1):75-103.
Beatty, A., and J. Weber. 2003. The effects of debt contracting on voluntary accounting method changes. *The Accounting Review* 78 (1):119-142.
Bedard, J., S. M. Chtourou, and L. Courteau. 2004. The effect of audit committee expertise, independence, and activity on aggressive earnings management. *Auditing: A Journal of Practice & Theory* 23 (2):13-35.
Beekes, W., and P. Brown. 2006. Do Better-Governed Australian Firms Make More Informative Disclosures? *Journal of Business Finance & Accounting* 33 (3-4):422-450.
Beretta, S., and S. Bozzolan. 2004. A framework for the analysis of firm risk communication. *The International Journal of Accounting* 39 (3):265-288.
Berger, P. G., and R. N. Hann. 2007. Segment profitability and the proprietary and agency costs of disclosure. *The Accounting Review* 82 (4):869-906.
Berkowitz, J., and J. O'Brien. 2002. How Accurate Are the Value-at-Risk Models at Commercial Banks? *Journal of Finance* 57:1093–1111.
Beyer, A., D. Cohen, T. Lys, n, and B. Walther. 2010a. The financial reporting environment: Review of the recent literature. *Journal of Accounting and Economics* 50 (2):296-343.
Beyer, A., D. A. Cohen, T. Z. Lys, and B. R. Walther. 2010b. The financial reporting environment: Review of the recent literature. *Journal of Accounting and Economics* 50 (2):296-343.
Bhushan, R. 1989. Firm characteristics and analyst following. *Journal of Accounting and Economics* 11 (2):255-274.
Bich Tao, N., and M. Hutchinson. 2013. Corporate Governance and Risk Management: The role of risk management and compensation committees. *Journal of Contemporary Accounting & Economics*.
Biddle, G. C., and G. Hilary. 2006. Accounting quality and firm-level capital investment. *The Accounting Review* 81 (5):963-982.
Biddle, G. C., G. Hilary, and R. Verdi. 2009a. How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics* 48 (2):112-131.
———. 2009b. How does financial reporting quality relate to investment efficiency? *Journal of Accounting & Economics* 48 (2):112-131.
Bley, J., and K. Chen. 2006. Gulf Cooperation Council (GCC) stock markets: The dawn of a new era. *Global Finance Journal* 17 (1):75-91.

Bley, J., and M. Saad. 2011. The effect of financial liberalization on stock-return volatility in GCC markets. *Journal of International Financial Markets, Institutions and Money* 21 (5):662-685.
———. 2012. Idiosyncratic risk and expected returns in frontier markets: Evidence from GCC. *Journal of International Financial Markets, Institutions and Money* 22 (3):538-554.
Bloomfield, R., F. Hodge, and P. Hopkins. 2014. Does coordinated presentation help credit anlayst identify firm characteristics. *Forthcoming Contemporary Accounting Research*.
Bolbol, A. A., and M. M. Omran. 2005. Investment and the stock market: evidence from Arab firm-level panel data. *Emerging Markets Review* 6 (1):85-106.
Boot, A. W. A., and A. Thakor, V. 2001. The many faces of information disclosure. *The Review of Financial Studies* 14 (4):1021-1057.
Borch, K. H. 1968. *The economics of uncertainty*. Vol. 209: Princeton University Press Princeton.
Botosan, C. 1997a. Disclosure level and the cost of equiyt capital. *The Accounting Review* 72 (3):323-349.
Botosan, C. 2002. A Re-Examination of Disclosure Level and the Expected Cost of Equity Capital. *Journal of Accounting Research* 40 (1):21-40.
———. 2005. Assessing alternative proxies for the expected risk premium. *The Accounting Review* 80 (1):21-53.
Botosan, C., M. Botosan, and H. E. Plumlee. 2011. The relation between expected returns, realized returns, and firm risk characteristics. *Contemporary Accounting Research* 28 (4):1085-1122.
Botosan, C. A. 1997b. Disclosure level and the cost of equity capital. *Accounting Review*:323-349.
———. 2000. Evidence that greater disclosure lowers the cost of equity capital. *Journal of Applied Corporate Finance* 12 (4):60-69.
Botosan, C. A., and M. A. Plumlee. 2005. Assessing alternative proxies for the expected risk premium. *The Accounting review* 80 (1):21-53.
Botosan, C. A., and M. Stanford. 2005. Managers' motives to withhold segment disclosures and the effect of SFAS No. 131 on analysts' information environment. *The Accounting Review* 80 (3):751-772.
Boubakri, N., O. Guedhami, D. Mishra, and W. Saffar. 2012. Political connections and the cost of equity capital. *Journal of Corporate Finance* 18 (3):541-559.
Bradshaw, M. T., M. S. Drake, J. N. Myers, and L. A. Myers. 2012. A re-examination of analysts' superiority over time-series forecasts of annual earnings. *Review of Accounting Studies* 17 (4):944-968.
Breeden, D., and S. Viswanathan. 1998. Why do firms hedge? An asymmetric information model. *Fuqua School of Business, Working Paper*.
Brickley, J. A., and C. M. James. 1987. The takeover market, corporate board composition, and ownership structure: The case of banking. *Journal of Law and Economics*:161-180.
Brown, I., A. Steen, and J. Foreman. 2009. Risk management in corporate governance: A review and proposal. *Corporate Governance: An International Review* 17 (5):546-558.
Bulan, L. T., and N. Subramanian. 2009. The firm life cycle theory of dividends. *Dividends and Dividend Policy*:201-213.
Buzby, S. L. 1975. Company size, listed versus unlisted stocks, and the extent of financial disclosure. *Journal of Accounting Research*:16-37.
Cabedo, J. D., and J. M. Tirado. 2004. The disclosure of risk in financial statements. Paper read at Accounting Forum.
Cameron, A. C., and K. T. Pravin. 2009. *Microeconometrics using stata*. 5 vols. College Station: TX: Stata Press.
Campbell, J. L., H. Chen, D. S. Dhaliwal, H.-m. Lu, and L. B. Steele. 2014. The information content of mandatory risk factor disclosures in corporate filings. *Review of Accounting Studies* 19 (1):396-455.
Carcello, J. V., and T. L. Neal. 2003a. Audit committee characteristics and auditor dismissals following "new" going-concern reports. *The Accounting Review* 78 (1):95-117.
———. 2003b. Audit committee independence and disclosure: choice for financially distressed firms. *Corporate Governance: An International Review* 11 (4):289-299.
Cerf, A. R. 1961. *Corporate reporting and investment decisions*: Public Accounting Research Program, Institute of Business and Economic Research, University of California.

Certo, S. T. 2003. Influencing initial public offering investors with prestige: Signaling with board structures. *Academy of Management Review* 28 (3):432-446.
Chalmers, K. 2001. The progression from voluntary to mandatory derivatives instrument disclosures-Look who's talking. *Australian Accounting Review,* 11 (1):34-45.
Chalmers, K., and J. Godfrey. 2004. Reputation costs: the impetus for discretionary derivative financial instruments reporting. *Accounting Organizations and Society* 29: 95-125.
Chaney, P. K., M. Faccio, and D. Parsley. 2011. The quality of accounting information in politically connected firms. *Journal of Accounting and Economics* 51 (1):58-76.
Chau, G., and S. J. Gray. 2010. Family ownership, board independence and voluntary disclosure: Evidence from Hong Kong. *Journal of International Accounting, Auditing and Taxation* 19 (2):93-109.
Chen, C., D. Young, and Z. Zhuang. 2013. Externalities of Mandatory IFRS Adoption: Evidence from Cross-Border Spillover Effects of Financial Information on Investment Efficiency. *The Accounting Review* 88 (3):881-914.
Chen, C. J., and B. Jaggi. 2001. Association between independent non-executive directors, family control and financial disclosures in Hong Kong. *Journal of Accounting and Public Policy* 19 (4):285-310.
Chen, F., O. Hope, O. Li, and X. Wang. 2011a. Financial reporting quality and investment efficiency of private firms in emerging markets. *The Accounting Review* 86 (4):1255-1288.
Chen, H., J. Z. Chen, G. J. Lobo, and Y. Wang. 2011b. Effects of audit quality on earnings management and cost of equity capital: evidence from China. *Contemporary Accounting Research* 28 (3):892-925.
Chen, H., and Z. Gao. 2010a. Value-at-Risk Disclosure & Cost of Equity Capital. *Global Economy & Finance Journal* 3 (2):61-75.
Chen, K. C., Z. Chen, and K.-C. Wei. 2009. Legal protection of investors, corporate governance, and the cost of equity capital. *Journal of Corporate Finance* 15 (3):273-289.
Chen, S., and I. Chen. 2012. Corporate governance and capital allocations of diversified firms. *Journal of Banking and Finance* 36 (2):395-409.
Chen, S., Z. Sun, T. Song, and D. Wu. 2011d. Government intervention and investment efficiency: Evidence from china. *Journal of Corporate Finance* 17 (2):259-271.
Chen, Z., D. S. Dhaliwal, and H. Xie. 2010. Regulation fair disclosure and the cost of equity capital. *Review of Accounting Studies* 15 (1):106-144.
Cheng, E., and S. M. Courtenay. 2006. Board composition, regulatory regime and voluntary disclosure. *The International Journal of Accounting* 41 (3):262-289.
Cheng, M., D. Dhaliwal, and Y. Zhang. 2013. Does investment efficiency improve after the disclosure of material weaknesses in internal control over financial reporting? *Journal of Accounting and Economics* 56 (1):1-18.
Chi, H.-Y., and C.-L. Chin. 2011. Firm versus partner measures of auditor industry expertise and effects on auditor quality. *Auditing: A Journal of Practice & Theory* 30 (2):201-229.
Cho, C. H., Michelon, G., Patten, D. M., & Roberts, R. W. (2015). CSR disclosure: the more things change…?. Accounting, Auditing & Accountability Journal, 28(1), 14-35.
Choi, F. D. 1973. Financial disclosure and entry to the European capital market. *Journal of Accounting Research*:159-175.
Clarkson, P., A. Van Bueren, and J. Walker. 2006. Chief executive officer remuneration disclosure quality: corporate responses to an evolving disclosure environment. *Accounting and Finance* 46:771-796.
Clarkson, P. M., C. Ferguson, and J. Hall. 2003. Auditor conservatism and voluntary disclosure: evidence from the year 2000 systems issue. *Accounting & Finance* 43 (1):21-40.
Claus, J., and J. Thomas. 2001. Equity premia as low as three percent? Evidence from analysts' earnings forecasts for domestic and international stock markets. *The Journal of Finance* 56 (5):1629-1666.
Craswell, A. T., and S. L. Taylor. 1992. Discretionary disclosure of reserves by oil and gas companies: an economic analysis. *Journal of Business Finance and Accounting* 19 (2):295-308.

Darayseh, M., I. Gence, B. AL-Foul, and W. Abdallah. 2010. The accuracy of the annual financial report data: An empirical analysis of GCC firms. *International Business & Economics Research Journal* 9 (8):15-19.
Daske, H. 2006. Economic Benefits of Adopting IFRS or US-GAAP–Have the Expected Cost of Equity Capital Really Decreased? *Journal of Business Finance and Accounting* 33 (3-4):329-373.
DeAngelo, H., L. DeAngelo, and R. M. Stulz. 2006. Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial Economics* 81 (2):227-254.
DeAngelo, H., L. DeAngelo, and R. M. Stulz. 2010. Seasoned equity offerings, market timing, and the corporate lifecycle. *Journal of Financial Economics* 95 (3):275-295.
DeAngelo, L. E. 1981. Auditor size and audit quality. *Journal of Accounting and Economics* 3 (3):183-199.
Dechow, P. M., and I. D. Dichev. 2002. The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review* 77 (s-1):35-59.
DeFond, M., M. Hung, and R. Trezevant. 2007. Investor protection and the information content of annual earnings announcements: International evidence. *Journal of Accounting and Economics* 43 (1):37-67.
DeMarzo, P. M., and D. Duffie. 1995. Corporate incentives for hedging and hedge accounting. *Review of Financial Studies* 8 (3):743-771.
DeZoort, F. T., and S. E. Salterio. 2001. The effects of corporate governance experience and financial-reporting and audit knowledge on audit committee members' judgments. *Auditing: A Journal of Practice & Theory* 20 (2):31-47.
Dhaliwal, D., L. Krull, O. Z. Li, and W. Moser. 2005. Dividend taxes and implied cost of equity capital. *Journal of Accounting Research* 43 (5):675-708.
Dhaliwal, D., V. Naiker, and F. Navissi. 2010. The Association Between Accruals Quality and the Characteristics of Accounting Experts and Mix of Expertise on Audit Committees. *Contemporary Accounting Research* 27 (3):787-827.
Diamond, D. W., and R. E. Verrecchia. 1991. Disclosure, liquidity, and the cost of capital. *The Journal of Finance* 46 (4):1325-1359.
Dickinson, V., and G. A. Sommers. 2012. Which competitive efforts Lead to future abnormal economic rents? using accounting ratios to assess competitive advantage. *Journal of Business, Finance and Accounting* 39 (3):360-398.
Dittmar, A., J. Mahrt-Smith, and H. Servaes. 2003. International corporate governance and corporate cash holdings. *Journal of Financial and Quantitative Analysis* 38 (01):111-133.
Dobler, M. 2008a. Incentives for risk reporting—A discretionary disclosure and cheap talk approach. *The International Journal of Accounting* 43 (2):184-206.
Doidge, C., G. Andrew Karolyi, and R. M. Stulz. 2007. Why do countries matter so much for corporate governance? *Journal of Financial Economics* 86 (1):1-39.
Dontoh, A., and J. Ronen. 1993. Information content of accounting announcements. *The Accounting Review*:857-869.
Douglas, A. V. 2003. Corporate Investment Incentives and Accounting-Based Debt Covenants. *Contemporary Accounting Research* 20 (4):645-683.
Dry, E. K. 2003. Corporate governance in the Sultanate of Oman. *Rich. J. Global L. & Bus.* 3:45.
Dye, R. 1986. Proprietary and non-proprietary disclosures. *Journal of Business* 59 (2):331-366.
Dye, R. A. 2001. An evaluation of “essays on disclosure” and the disclosure literature in accounting. *Journal of Accounting and Economics* 32 (1):181-235.
Easley, D., and M. O'hara. 2004. Information and the cost of capital. *The Journal of Finance* 59 (4):1553-1583.
Easton, P. 2006. Use of forecasts of earnings to estimate and compare cost of capital across regimes. *Journal of Business, Finance and Accounting* 33 (3-4):374-394.
Easton, P. D. 2004. PE ratios, PEG ratios, and estimating the implied expected rate of return on equity capital. *The Accounting Review* 79 (1):73-95.
Easton, P. D., and G. A. Sommers. 2007. Effect of analysts' optimism on estimates of the expected rate of return implied by earnings forecasts. *Journal of Accounting Research* 45 (5):983-1015.

Einhorn, E. 2005. The nature of the interaction between mandatory and voluntary disclosures. *Journal of Accounting Research* 43 (4):593-621.
El Ghoul, S., O. Guedhami, C. C. Kwok, and D. R. Mishra. 2011. Does corporate social responsibility affect the cost of capital? *Journal of Banking & Finance* 35 (9):2388-2406.
Elshandidy, T., I. Fraser, and K. Hussainey. 2013. Aggregated, voluntary, and mandatory risk disclosure incentives: Evidence from UK FTSE all-share companies. *International Review of Financial Analysis* Forthcoming.
Emanuel, D., J. Wong, and N. Wong. 2003. Efficient contracting and accounting. *Accounting & Finance* 43 (2):149-166.
Eng, L. L., and Y. T. Mak. 2003. Corporate governance and voluntary disclosure. *Journal of Accounting and Public Policy* 22 (4):325-345.
Espinoza, R., A. Espinoza, and O. Prasad. 2011. Regional financial integration in the GCC. *Emerging Markets Review* 12 (4):354-370.
Fama, E. F., and K. R. French. 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics* 33 (1):3-56.
———. 1996. Multifactor explanations of asset pricing anomalies. *The Journal of Finance* 51 (1):55-84.
Fama, E. F., and M. C. Jensen. 1983. Separation of ownership and control. *Journal of law and Economics* 26 (2):301-325.
Fama, E. F., and M. C. Jensen. 1985. Organizational forms and investment decisions. *Journal of Financial Economics* 14 (1):101-119.
Fasano, U., and Z. Iqbal. 2003. *GCC countries: from oil dependence to diversification*: International Monetary Fund.
FASB/IASB. 2009. Analyst Field Test Results. Norwalk, CT: FASB/IASB.
Felo, A. J., S. Krishnamurthy, and S. A. Solieri. 2003. Audit committee characteristics and the perceived quality of financial reporting: an empirical analysis: Working paper series, Binghamton University School of Management.
Field, L., M. Lowry, and A. Mkrtchyan. 2013. Are busy boards detrimental? *Journal of Financial Economics* 109 (1):63-82.
Firth, M. 1979. The impact of size, stock market listing, and auditors on voluntary disclosure in corporate annual reports. *Accounting and Business Research* 9 (36):273-280.
Fishman, M. J., and K. M. Hagerty. 1995. The incentive to sell financial market information. *Journal of Financial Intermediation* 4 (2):95-115.
Francis, J., R. LaFond, P. M. Olsson, and K. Schipper. 2004. Costs of equity and earnings attributes. *The Accounting Review* 79 (4):967-1010.
Francis, J. R., I. K. Khurana, and R. Pereira. 2005. Disclosure incentives and effects on cost of capital around the world. *The Accounting Review* 80 (4):1125-1162.
Francis, J. R., and J. Krishnan. 1999. Accounting accruals and auditor reporting conservatism. *Contemporary Accounting Research* 16 (1):135-165.
Frankel, R., M. McNichols, and G. P. Wilson. 1995. Discretionary disclosure and external financing. *The Accounting Review*:135-150.
Freeman, R. E. 1984. *Strategic management: A stakeholder approach*. Boston: Pitman Publishing Inc.
Gay, G. 2011. Corporate derivatives use and the cost of equity. *Journal of Banking & Finance* 35 (6):1491-1506.
Gay, G., C. Lin, and S. Smith. 2011. Corporate derivatives use and the cost of equity. *Journal of Banking & Finance* 35 (6):1491-1506.
Gigler, F. 1994. Self-enforcing voluntary disclosures. *Journal of Accounting Research* 32 (2):224-240.
Godfrey, J., A. Hodgson, A. Tarca, J. Hamilton, and S. Holmes. 2010. *Accounting Theory*: John Wiley and Sons.
Godfrey, J., P. Mather, and A. Ramsay. 2003. Earnings and impression management in financial reports: the case of CEO changes. *ABACUS* 39 (1):95-123.
Gomes, A., G. Gorton, and L. Madureira. 2007. SEC Regulation Fair Disclosure, information, and the cost of capital. *Journal of Corporate Finance* 13 (2):300-334.

Graham, J., C. Harvey, and S. Rajgopal. 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40:3-73.
Gray, S. J. 1988. Towards a theory of cultural influence on the development of accounting systems internationally. *ABACUS* 24 (1):1-15.
Greenstone, M., P. Oyer, and A. Vissing-Jorgensen. 2006. Mandated disclosure, stock returns, and the 1964 Securities Acts Amendments. *The Quarterly Journal of Economics* 121 (2):399-460.
Grossman, S. J., and O. D. Hart. 1988. One share-one vote and the market for corporate control. *Journal of Financial Economics* 20:175-202.
Gul, F. A., G. S. Zhou, and X. K. Zhu. 2013. Investor Protection, Firm Informational Problems, Big N Auditors and Cost of Debt Around the World. *Auditing: A Journal of Practice and Theory*.
Hail, L., and C. Leuz. 2006. International differences in the cost of equity capital: Do legal institutions and securities regulation matter? *Journal of Accounting Research* 44 (3):485-531.
Haniffa, R., and T. Cooke. 2002. Culture, Corporate Governance & Disclosure in Malaysian Corporations *ABACUS* 28 (3):317-349.
Harvey, C. R., K. V. Lins, and A. H. Roper. 2004. The effect of capital structure when expected agency costs are extreme. *Journal of Financial Economics* 74 (1):3-30.
Hasan, M. M., M. Hossain, A. Cheung, and A. Habib. 2013. Corporate Life Cycle and Cost of Equity Capital.*Forthcoming* Journal of Contemporary Accounting and Economics.
Hassan, M. K. 2009. UAE corporations-specific characteristics and level of risk disclosure. *Managerial Auditing Journal* 24 (7):668-687.
Hausman, J. A. 1978. Specification tests in econometrics. *Econometrica: Journal of the Econometric Society*:1251-1271.
Hawkamah. 2010. Hawkamah Brief on Corporate Governance Codes of the GCC, Hawkamah the Institute for Corporate Governance and OECD, annual conferences, Muscat Oman, November
He, W. P., A. Lepone, and H. Leung. 2013. Information asymmetry and the cost of equity capital. *International Review of Economics and Finance*.
Healy, P. M., and K. G. Palepu. 2001b. Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics* 31 (1):405-440.
Heitzman, S., C. Wasley, and J. Zimmerman. 2010. The joint effects of materiality thresholds and voluntary disclosure incentives on firms' disclosure decisions. *Journal of Accounting and Economics* 49 (1):109-132.
Herrmann, D., and W. B. Thomas. 2000. A model of forecast precision using segment disclosures: implications for SFAS no. 131. *Journal of International Accounting, Auditing and Taxation* 9 (1):1-18.
Hertog, S. 2012. *How the GCC did it: formal and informal governance of successful public enterprise in the Gulf Co-operation Council countries*: OECD.
Hirshleifer, D., and S. Hong Teoh. 2003. Herd behaviour and cascading in capital markets: A review and synthesis. *European Financial Management* 9 (1):25-66.
Hirshleifer, D., and S. H. Teoh. 2003. Limited attention, information disclosure, and financial reporting. *Journal of Accounting and Economics* 36 (1):337-386.
Hirst, D., L. Koonce, and S. Venkataraman. 2007. How disaggregation enhances the credibility of management earnings forecasts. *Journal of Accounting Research* 45 (4):811-837.
Hirst, E., L. Koonce, and S. Venkataraman. 2007b. How disaggregation enhences the credibility of management earnings forecast. *Journal of Accounting Research* 45 (5):811-837.
Hirtle, B. 2007. Public Disclosure, Risk & Performance at Bank Holding Companies. *Federal Reserve Bank of New York Staff Reports No. 293*.
Ho, S. S., and K. Shun Wong. 2001. A study of the relationship between corporate governance structures and the extent of voluntary disclosure. *Journal of International Accounting, Auditing and Taxation* 10 (2):139-156.
Hodder, L., W. Hodder, M. Mayew, and C. McAnally. 2006. Employee Stock Option Fair-Value Estimates: Do Managerial Discretion and Incentives Explain Accuracy? *Contemporary Accounting Research* 23 (4):933-975.
Hodder, L., L. Koonce, and M. L. McAnally. 2001a. Behavioral implications of the SEC market risk disclosures. *Accounting Horizons* 15:49-70.

———. 2001b. SEC market risk disclosures: Implications for judgment and decision making. *Accounting horizons* 15 (1):49-70.
Hodder, L., and M. L. Mcanally. 2001. SEC market-risk disclosures: Enhancing comparability. *Financial Analysts Journal* 57 (2):62-78.
Hofstede, G., G. J. Hofstede, and M. Minkov. 1991. *Cultures and organisations-software of the mind: intercultural cooperation and its importance for survival*: McGraw-Hill New York, NY.
Hooks, J., & van Staden, C. J. (2011). Evaluating environmental disclosures: The relationship between quality and extent measures. *The British Accounting Review*, 43(3), 200-213.
Hoi, C. K., Q. Wu, and H. Zhang. 2013. Is corporate social responsibility (CSR) associated with tax avoidance? evidence from irresponsible CSR activities. *The Accounting Review*.
Hope, O. K. 2003. Disclosure practices, enforcement of accounting standards, and analysts' forecast accuracy: An international study. *Journal of Accounting Research* 41 (2):235-272.
Hoshi, T., A. Kashyap, and D. Scharfstein. 1991. Corporate structure, liquidity, and investment: evidence from Japanese industrial groups. *The Quarterly Journal of Economics* 106 (1):33-60.
Hossain, M., K. Ahmed, and J. M. Godfrey. 2005. Investment opportunity set and voluntary disclosure of prospective information: A simultaneous equations approach. *Journal of Business Finance and Accounting* 32 (5-6):871-907.
Hossain, M., and H. Hammami. 2009. Voluntary disclosure in the annual reports of an emerging country: The case of Qatar. *Advances in Accounting* 25 (2):255-265.
Htay, S., H. Rashid, M. Adnan, and A. Meera. 2011. Corporate Governance and Risk Management Information Disclosure in Malaysian Listed Banks: Panel Data Analysis. *International Review of Business Research Papers* 17 (4):159-176.
Hughes, J., J. Liu, and J. Liu. 2009. On the relation between expected returns and implied cost of capital. *Review of Accounting Studies* 14 (2-3):246-259.
Hughes, J. S., J. Liu, and J. Liu. 2007. Information asymmetry, diversification, and cost of capital. *The Accounting Review* 82 (3):705-729.
Hussain, M., M. Gunasekaran, and K. Maskooki. 2002. Accounting standards and practices of financial institutions in GCC countries. *Managerial Auditing Journal* 17 (7):350-362.
IASB, I. A. S. B. 2005. IFRS 7: Financial Instruments: Disclosures.
ICAEW. 1999. Implementing turnbull—A boardroom briefing. *The Institute of Chartered Accountants in England and Wales, London*.
IFC/Hawkamah. 2008. A Corporate governance survey of listed companies and banks across Middle East and North Africa. Pennsylvania: International Finance Corporation and Hawkamah.
Inchausti, B. G. 1997. The influence of company characteristics and accounting regulation on information disclosed by Spanish firms. *European Accounting Review* 6 (1):45-68.
Islam, M. 2003. Characteristics, performance and prospects of Muscat Securities Market: Facts and figures for international investors. *Journal of American Academy of Business* 3:230-236.
Jaggi, B., and S. Leung. 2007. Impact of family dominance on monitoring of earnings management by audit committees: Evidence from Hong Kong. *Journal of International Accounting, Auditing and Taxation* 16 (1):27-50.
Jaggi, B., S. Leung, and F. Gul. 2009. Family control, board independence and earnings management: Evidence based on Hong Kong firms. *Journal of Accounting and Public Policy* 28 (4):281-300.
Jensen, M. 1986. Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review* 76 (2):323-329.
Jensen, M., and W. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3 (4):305-360.
Jensen, M. C. 1993. The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance* 48 (3):831-880.
Jones, J. J. 1991. Earnings management during import relief investigations. *Journal of Accounting Research* 29 (2):193-228.
Jorgensen, B., and M. T. Kirschenheiter. 2003a. Discretionary risk disclosures. *The Accounting Review* 78 (2):449-469.

Jorgensen, B. N., and M. T. Kirschenheiter. 2003b. Discretionary risk disclosures. *The Accounting Review* 78 (2):449-469.
Jorion, P. 1990. The exchange-rate exposure of U.S. multinationals. *Journal of Business* 63 (3): 331-345.
Jorion, P. 2002a. How informative are Value-at-Risk disclosures? *The Accounting Review* 77 (4):911-931.
Jorion, P. 2002b. Fallacies about the effects of market risk management systems. *Journal of Risk*, 5, 75-96.
Jorion, P. 2007. *Value at risk: the new benchmark for managing financial risk*. Vol. 2: McGraw-Hill New York.
Joshi, P., and A. Wakil. 2004. A study of the audit committees' functioning in Bahrain: empirical findings. *Managerial Auditing Journal* 19 (7):832-858.
Judge, W. Q., I. Naoumova, and N. Koutzevol. 2003. Corporate governance and firm performance in Russia: an empirical study. *Journal of World Business* 38 (4):385-396.
Kamla, R., and C. Roberts. 2010. The global and the local: Arabian Gulf States and imagery in annual reports. *Accounting, Auditing & Accountability Journal* 23 (4):449-481.
Kang, H., M. Cheng, and S. J. Gray. 2007. Corporate governance and board composition: diversity and independence of Australian boards. *Corporate Governance: An International Review* 15 (2):194-207.
Kaufmann, D., A. Kraay, and M. Mastruzzi. 2009a. Governance matters VIII: aggregate and individual governance indicators, 1996-2008. *World bank policy research working paper No.4978 : available at http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2009/06/29/000158349_20090629095443/Rendered/PDF/WPS4978.pdf*.
Khurana, I. K., R. Pereira, and X. Martin. 2006. Firm growth and disclosure: An empirical analysis. *The Journal of Financial and Quantitative Analysis* 41 (2):357-380.
Kim, J. B., R. Chung, and M. Firth. 2003. Auditor Conservatism, Asymmetric Monitoring, and Earnings Management. *Contemporary Accounting Research* 20 (2):323-359.
Kim, O., and R. E. Verrecchia. 1994. Market liquidity and volume around earnings announcements. *Journal of Accounting and Economics* 17 (1):41-67.
Klapper, L. F., and I. Love. 2004. Corporate governance, investor protection, and performance in emerging markets. *Journal of Corporate Finance* 10 (5):703-728.
Klein, A. 2002. Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics* 33 (3):375-400.
Kothari, S., A. J. Leone, and C. E. Wasley. 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics* 39 (1):163-197.
La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny. 2000. Investor protection and corporate governance. *Journal of Financial Economics* 58 (1):3-27.
LaFond, R., and R. L. Watts. 2008. The information role of conservatism. *The Accounting Review* 83 (2):447-478.
Lagoarde-Segot, T., and B. M. Lucey. 2007. International portfolio diversification: is there a role for the Middle East and North Africa? *Journal of Multinational Financial Management* 17 (5):401-416.
Lail, B. E., R. C. Lipe, and H. Yi. 2009. A Re-Examination of the Costs (and Benefits) to Equity Investors from Including Accruals in Financial Reporting: Working paper: North Carolina State University and The University of Oklahoma.
Lambert, R. A. 2003. Discussion of 'limited attention, information disclosure, and financial reporting'. *Journal of Accounting and Economics* 36 (1):387-400.
Lambert, R. A., C. Leuz, and R. E. Verrecchia. 2012. Information asymmetry, information precision, and the cost of capital. *Review of Finance* 16 (1):1-29.
Lang, M., and R. Lundholm. 1993. Cross-sectional determinants of analyst ratings of corporate disclosures. *Journal of Accounting Research*:246-271.
Lang, M., J. Smith Raedy, and W. Wilson. 2006. Earnings management and cross listing: Are reconciled earnings comparable to US earnings? *Journal of Accounting and Economics* 42 (1):255-283.

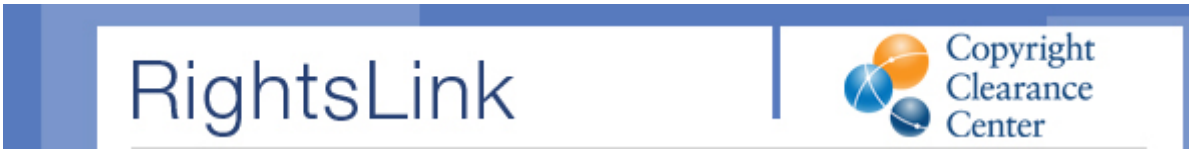
Lang, M. H., K. V. Lins, and D. P. Miller. 2004. Concentrated control, analyst following, and valuation: Do analysts matter most when investors are protected least? *Journal of Accounting Research* 42 (3):589-623.
Lansford, B., B. Lev, and J. Wu Tucker. 2013. Causes and consequences of disaggregating earnings guidance. *Journal of Business Finance & Accounting* 40 (1-2):26-54.
Larcker, D. F., and T. O. Rusticus. 2010. On the use of instrumental variables in accounting research. *Journal of Accounting and Economics* 49 (3):186-205.
Larocque, S. 2013. Analysts' earnings forecast errors and cost of equity capital estimates. *Review of Accounting Studies*:1-32.
Lee, T., and M. Stone. 1997. Economic agency and audit committees: Responsibilities and membership composition. *International Journal of Auditing* 1 (2):97-116.
Leuz, C., D. Nanda, and P. D. Wysocki. 2003. Earnings management and investor protection: an international comparison. *Journal of Financial Economics* 69 (3):505-527.
Leuz, C., and R. E. Verrecchia. 2000. The economic consequences of increased disclosure. *Journal of Accounting Research*:91-124.
———. 2004. *Firms' capital allocation choices, information quality and the cost of capital*: Rodney L. White Center for Financial Research.
Li, S. 2010. Does mandatory adoption of International Financial Reporting Standards in the European Union reduce the cost of equity capital? *The Accounting review* 85 (2):607-636.
Liao, Y., W. Chi, and Y. Chen. 2013. Auditor Economic Dependence and Accounting Conservatism: Evidence from a Low Litigation Risk Setting. *International Journal of Auditing* 17 (2):117-137.
Libby, R., and T. Brown. 2012. Financial Statement Disaggregation Decisions and Auditors' Tolerance for Misstatement. *The Accounting Review* 88 (2):641-665.
Lim, C., and P. Tan. 2007. Value Relevance of Value-at-risk Disclosure. *Review of Quantitative Finance & Accounting* 29 (4):353-370.
Lim, S., Z. Matolcsy, and D. Chow. 2007. The association between board composition and different types of voluntary disclosure. *European Accounting Review* 16 (3):555-583.
Lin, C.-M., R. D. Phillips, and S. D. Smith. 2008. Hedging, financing, and investment decisions: Theory and empirical tests. *Journal of Banking & Finance* 32 (8):1566-1582.
Linsley, P. M., and P. J. Shrives. 2006. Risk reporting: A study of risk disclosures in the annual reports of UK companies. *The British Accounting Review* 38 (4):387-404.
Linsmeier, T. J., D. B. Thornton, M. Venkatachalam, and M. Welker. 2002. The effect of mandated market risk disclosures on trading volume sensitivity to interest rate, exchange rate, and commodity price movements. *The Accounting Review* 77 (2):343-377.
Liu, C.-C., S. Ryan, and H. Tan. 2004a. How Banks' Value-at-Risk Disclosures Predict their Total and Priced Risk: Effects of Bank Technical Sophistication and Learning over Time. *Review of Accounting Studies* 9 (2-3):265-294.
Liu, C.-c., S. G. Ryan, and H. Tan. 2004b. How banks' value-at-risk disclosures predict their total and priced risk: Effects of bank technical sophistication and learning over time. *Review of Accounting Studies* 9 (2-3):265-294.
Lopes, A. B., and R. C. de Alencar. 2010. Disclosure and cost of equity capital in emerging markets: The Brazilian case. *The International Journal of Accounting* 45 (4):443-464.
Lu, T., and H. Sapra. 2009. Auditor conservatism and investment efficiency. *The Accounting Review* 84 (6):1933-1958.
Malliaris, A., and J. Urrutia. 1995. The impact of the Persian gulf crisis on national equity markets. *Advances in International Banking and Finance* 1:43–65.
Mallin, C. 2002. The relationship between corporate governance, transparency and financial disclosure. *Corporate Governance: An International Review* 10 (4):253-255.
Mallin, C., T. Dunne, C. Helliar, and K. Ow-Young. 2004. FRS 13 and corporate governance- a fund management perspective. *Qualitative Research in Accounting and Management* 1 (2):17-53.
Malone, D., C. Fries, and Y. Jones. 1993. An empirical investigation of the extent of corporate financial disclosure in the oil and gas industry. *Journal of Accounting, Auditing and Finance* 8 (3):249-273.

Mangena, M., and R. Pike. 2005. The effect of audit committee shareholding, financial expertise and size on interim financial disclosures. *Accounting and Business Research* 35 (4):327-349.
Markowitz, H. M. 1991. Foundations of Portfolio Theory. *The journal of Finance* 46 (2):469-477.
Marshall, A., and P. Weetman. 2002. Information asymmetry in disclosure of foreign exchange risk management: can regulation be effective? *Journal of Economics and Business [0148-6195] Marshall yr:2002 vol:54 iss:1 pg:31 -53* 54 (1):31-35.
Marshall, A., and P. Weetman. 2007. Modelling Transparency in Disclosure: The Case of Foreign Exchange Risk Management. *Journal of Business Finance & Accounting* 34 (5-6):705-739.
Mazaheri, N. 2013. The Saudi monarchy and economic familism in an era of business environment reforms. *Business and Politics* 15 (3):295-321.
McConnell, J. J., and H. Servaes. 1995. Equity ownership and the two faces of debt. *Journal of Financial Economics* 39 (1):131-157.
McNichols, M. F., and S. R. Stubben. 2008. Does earnings management affect firms' investment decisions? *The Accounting Review* 83 (6):1571-1603.
Miihkinen, A. 2012. What Drives Quality of Firm Risk Disclosure?: The Impact of a National Disclosure Standard and Reporting Incentives under IFRS. *The International Journal of Accounting* 47 (4):437-468.
Miller, D., & Friesen, P. H. (1984). A longitudinal study of the corporate life cycle. *Management science*, 30(10), 1161-1183.
Mina, W. 2007. The location determinants of FDI in the GCC countries. *Journal of Multinational Financial Management* 17 (4):336-348.
Mincer, J. A., and V. Zarnowitz. 1969. The evaluation of economic forecasts. In *Economic Forecasts and Expectations: Analysis of Forecasting Behavior and Performance*: NBER, 1-46.
Modigliani, F., and M. H. Miller. 1958. The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review* 48 (3):261-297.
Mohanram, P., and D. Gode. 2013. Removing predictable analyst forecast errors to improve implied cost of equity estimates. *Review of Accounting Studies*:1-36.
Morgado, A., and J. Pindado. 2003. The underinvestment and overinvestment hypotheses: an analysis using panel data. *European Financial Management* 9 (2):163-177.
Murray, M. 2006. Avoiding Invalid Instruments and Coping with Weak Instruments. *The Journal of Economic Perspectives* 20 (4):111-132.
Myers, S. 1977. Determinants of corporate borrowing. *Journal of Financial Economics* 5 (2):147-175.
Myers, S., and N. Majluf. 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* 13 (2):187-221.
Myring, M., and R. Shortridge. 2010. Corporate Governance and the Quality of Financial Disclosures. *Intentional Business Economics Res* 9 (6):103-110.
Neu, D., H. Warsame, and K. Pedwell. 1998. Managing public impressions: environmental disclosures in annual reports. *Accounting, Organizations and Society* 23 (3):265-282.
Nier, E., and U. Baumann. 2006. Market discipline, disclosure and moral hazard in banking. *Journal of Financial Intermediation* 15 (3):332-361.
Ntim, C. G., S. Lindop, and D. A. Thomas. 2013. Corporate governance and risk reporting in South Africa: A study of corporate risk disclosures in the pre-and post-2007/2008 global financial crisis periods. *International Review of Financial Analysis* 30:363-383.
O'Hanlon, J., and A. Steele. 2000. Estimating the equity risk premium using accounting fundamentals. *Journal of Business Finance and Accounting* 27 (9-10):1051-1083.
OECD. 2004. Corporate governance in MENA countries: improving transparency and disclosure: the second Middle East and North Africa Regional Corporate governance Forum, Beirut, June 3-5, 2004, edited by N. A. H. Saidi: Lebanese Transparency Association.
Ohlson, J. A., and B. E. Juettner-Nauroth. 2005. Expected EPS and EPS growth as determinantsof value. *Review of Accounting Studies* 10 (2-3):349-365.
Ostberg, P. 2006. Disclosure, investment and regulation. *Journal of Financial Intermediation* 15 (3):285-306.
Othman, R., and R. Ameer. 2009. Market risk disclosure: evidence from Malaysian listed firms. *Journal of Financial Regulation and Compliance* 17 (1):57-69.

Owen, S., and A. Yawson. 2010. Corporate life cycle and M&A activity. *Journal of Banking & Finance* 34 (2):427-440.
Pástor, Ľ., and V. Pietro. 2003. Stock valuation and learning about profitability. *The Journal of Finance* 58 (5):1749-1790.
Pástor, Ľ., M. Sinha, and B. Swaminathan. 2008. Estimating the intertemporal risk–return tradeoff using the implied cost of capital. *The Journal of Finance* 63 (6):2859-2897.
Peasnell, K. V., P. Pope, and S. Young. 2000. Accrual management to meet earnings targets: UK evidence pre-and post-Cadbury. *The British Accounting Review* 32 (4):415-445.
Perignon, C., and D. Smith. 2010a. The level and quality of Value-at-Risk disclosure by commercial banks. *Journal of Banking & Finance* 34 (2):362-377.
Perignon, C., and D. R. Smith. 2010b. Diversification and value-at-risk. *Journal of Banking & Finance* 34 (1):55-66.
Pfeffer, J., and G. R. Salancik. 1978. The external control of organizations: A resource dependence approach. *NY: Harper and Row Publishers*.
Plumlee, M., D. Brown, and R. Marshall. 2009. Voluntary environmental disclosure quality and firm value: role of venue and industry type, Working paper (University of Utah).
Popova, T., G. Georgakopoulos, I. Sotiropoulos, and K. Vasileiou. 2013. Mandatory Disclosure and Its Impact on the Company Value. *International Business Research* 6 (5):1-16.
Rajgopal, S. 1999. Early evidence on the informativeness of the SEC's market risk disclosures: the case of commodity price risk exposure of oil and gas producers. *The Accounting Review* 74 (3):251.
Rajgopal, S., and M. Venkatachalam. 2000 Are earnings sensitivity measures risk-relevant? The case of oil price risk for the petroleum refining industry. . *Working paper, Stanford University, Stanford, California. Available on line: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.35.2614&rep=rep1&type=*.
Ramady, M. 2005. *The Saudi Arabian economy: Policies achievements and challenges*. New York Springer.
Richardson, S. 2006. Over-investment of free cash flow. *Review Accounting Studies* 11 (2-3):159-198.
Riedl, E. J., and S. Srinivasan. 2010. Signaling firm performance through financial statement presentation: An analysis using special items. *Contemporary Accounting Research* 27 (1):289-332.
Rosenstein, S., and J. G. Wyatt. 1990. Outside directors, board independence, and shareholder wealth. *Journal of Financial Economics* 26 (2):175-191.
Schipper, K. 2007. Required disclosures in financial reports. *The Accounting Review* 82 (2):301-326.
Schrand, C. 1997. The association between stock-price interest rate sensitivity & disclosures about derivative instruments. *The Accounting Review* 72 (1):87-110.
Schrand, C. M., and J. A. Elliott. 1998. Risk and financial reporting: A summary of the discussion at the 1997 AAA/FASB conference. *Accounting Horizons* 12:271-282.
SEC, S. a. E. C. 1999. Materiality. Staff Accounting Bulletin No. 99. Washington, DC: Government Printing Office.
———. 2011. An Analysis of IFRS in Practice. Asecurities and Exchange Commission Staff Paper Novmber 16. Washington, DC: Goverment Printing Office.
Sengupta, P. 1998. Corporate disclosure quality and the cost of debt. *The Accounting Review*:459-474.
Sharar, Z. A. A. 2011. Corporate governance in Qatar: A comparative analysis. Bond University Working Paper avaibale on line at http://epublications.bond.edu.au/cgej/23/
Shleifer, A., and R. W. Vishny. 1986. Large shareholders and corporate control. *The Journal of Political Economy*:461-488.
———. 1997. A survey of corporate governance. *The Journal of Finance* 52 (2):737-783.
Singhvi, S. S., and H. B. Desai. 1971. An empirical analysis of the quality of corporate financial disclosure. *Accounting Review*:129-138.
Smith, C. W., and R. M. Stulz. 1985. The determinants of firms' hedging policies. *Journal of Financial and Quantitative Analysis* 20 (04):391-405.
Smith Jr, C. W., and J. B. Warner. 1979. On financial contracting: An analysis of bond covenants. *Journal of Financial Economics* 7 (2):117-161.

Solomon, J. F., A. Solomon, S. D. Norton, and N. L. Joseph. 2000b. A conceptual framework for corporate risk disclosure emerging from the agenda for corporate governance reform. *The British Accounting Review* 32 (4):447-478.
Song, J., and B. Windram. 2004. Benchmarking audit committee effectiveness in financial reporting. *International Journal of Auditing* 8 (3):195-205.
Sribunnak, V., and F. Wong. 2006. The Impact of Excluding Nonfinancial Exposure on the Usefulness of Foreign Exchange Sensitivity-analysis Risk Disclosure. *Journal of Accounting, Auditing & Finance* 21:1-25.
Srinivasan, S. 2005. Consequences of financial reporting failure for outside directors: Evidence from accounting restatements and audit committee members. *Journal of Accounting Research* 43 (2):291-334.
Stigler, G. J. 1961. The economics of information. *The Journal of Political Economy*:213-225.
Stock, J. H., J. H. Wright, and M. Yogo. 2002. A survey of weak instruments and weak identification in Generalized Method of Moments. *Journal of Business and Economic Statistics* 20 (4):518-529.
Stock, J. H., and M. Yogo. 2002. Testing for weak instruments in linear IV regression: National Bureau of Economic Research Cambridge, Mass., USA.
Stocken, P. C., and R. E. Verrecchia. 2004. Financial reporting system choice and disclosure management. *The Accounting Review* 79 (4):1181-1203.
Subramaniam, N., L. McManus, and J. Zhang. 2009. Corporate governance, firm characteristics and risk management committee formation in Australian companies. *Managerial Auditing Journal* 24 (4):316-339.
Tao, N. B., and M. Hutchinson. 2013. Corporate governance and risk management: The role of risk management and compensation committees. *Journal of Contemporary Accounting & Economics* 9 (1):83-99.
Taylor, G., G. Tower, M. Van Der Zahn, and N. J. 2008. Corporate Governance Determinants on Australian Resource Companies' Financial Instrument Disclosures Practices. *Asian Review of Accounting* 16 (1):56-73.
Teoh, S. H., I. Welch, and T. J. Wong. 1998. Earnings management and the underperformance of seasoned equity offerings. *Journal of Financial Economics* 50 (1):63-99.
Terjesen, S., R. Sealy, and V. Singh. 2009. Women directors on corporate boards: A review and research agenda. *Corporate Governance: An International Review* 17 (3):320-337.
Thornton, D. B., and M. Welker. 2004. The Effect of Oil and Gas Producers' FRR No. 48 Disclosures on Investors' Risk Assessments. *Journal of Accounting, Auditing & Finance* 19 (1):85-114.
TNI Survey, H., Mudara 2008. Power Matters: A Survey of GCC Boards, edited by N. Saidi. Hawkahah & Mudara.
Tong, L., and H. Sapra. 2009. Auditor Conservatism and Investment Efficiency. *The Accounting Review* 84 (6):1933-1958.
Tricker, B. 2000. Editorial: Corporate governance–the subject whose time has come. *Corporate Governance: An International Review* 8 (4):289-296.
Tufano, P. 1996. Who manages risk? An empirical examination of risk management practices in the gold industry. *Journal of Finance* 51 (4):1097-1138.
Venter, E. R., S. F. Cahan, and D. Emanuel. 2013. Mandatory earnings disaggregation and the persistence and pricing of earnings components. *The International Journal of Accounting*.
Verrecchia, R. 2001a. Essays on disclosure. *Journal of Accounting and Economics* 32 (1):97-180.
Verrecchia, R. E. 1983. Discretionary disclosure. *Journal of Accounting and Economics* 5:179-194.
———. 1990. Information quality and discretionary disclosure. *Journal of Accounting and Economics* 12 (4):365-380.
Wallace, R., and K. Naser. 1996. Firm-specific determinants of the comprehensiveness of mandatory disclosure in the corporate annual reports of firms listed on the stock exchange of Hong Kong. *Journal of Accounting and Public Policy* 14 (4):311-368.
Wan-Hussin, W. N. 2009. The impact of family-firm structure and board composition on corporate transparency: Evidence based on segment disclosures in Malaysia. *The International Journal of Accounting* 44 (4):313-333.

Watts, R., and J. Zimmerman. 1990. Positive Accounting Theory: A Ten Year Perspective. *The Accounting Review* 65 (1):131-156.
Weisbach, M. S. 1988. Outside directors and CEO turnover. *Journal of Financial Economics* 20:431-460.
Williamson, O. E. 1979. Transaction-cost economics: the governance of contractual relations. *Journal of Law and Economics*:233-261.
Wokukwu, K. C. (2000). Life cycle and capital structure: some empirical evidence. Nova Southeastern University.
Wong, M. F. 2000b. The association between SFAS No. 119 derivatives disclosures and the foreign exchange risk exposure of manufacturing firms. *Journal of Accounting Research*:387-417.
Woods, M., K. Dowd, and C. Humphrey. 2008. Market Risk Reporting by the World's Top Banks: Evidence on the Diversity of Reporting Practice and the Implications for International Accounting Harmonisation. *Spanish Accounting Review* 11 (2):9.
Yermack, D. 1996. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics* 40 (2):185-211.



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